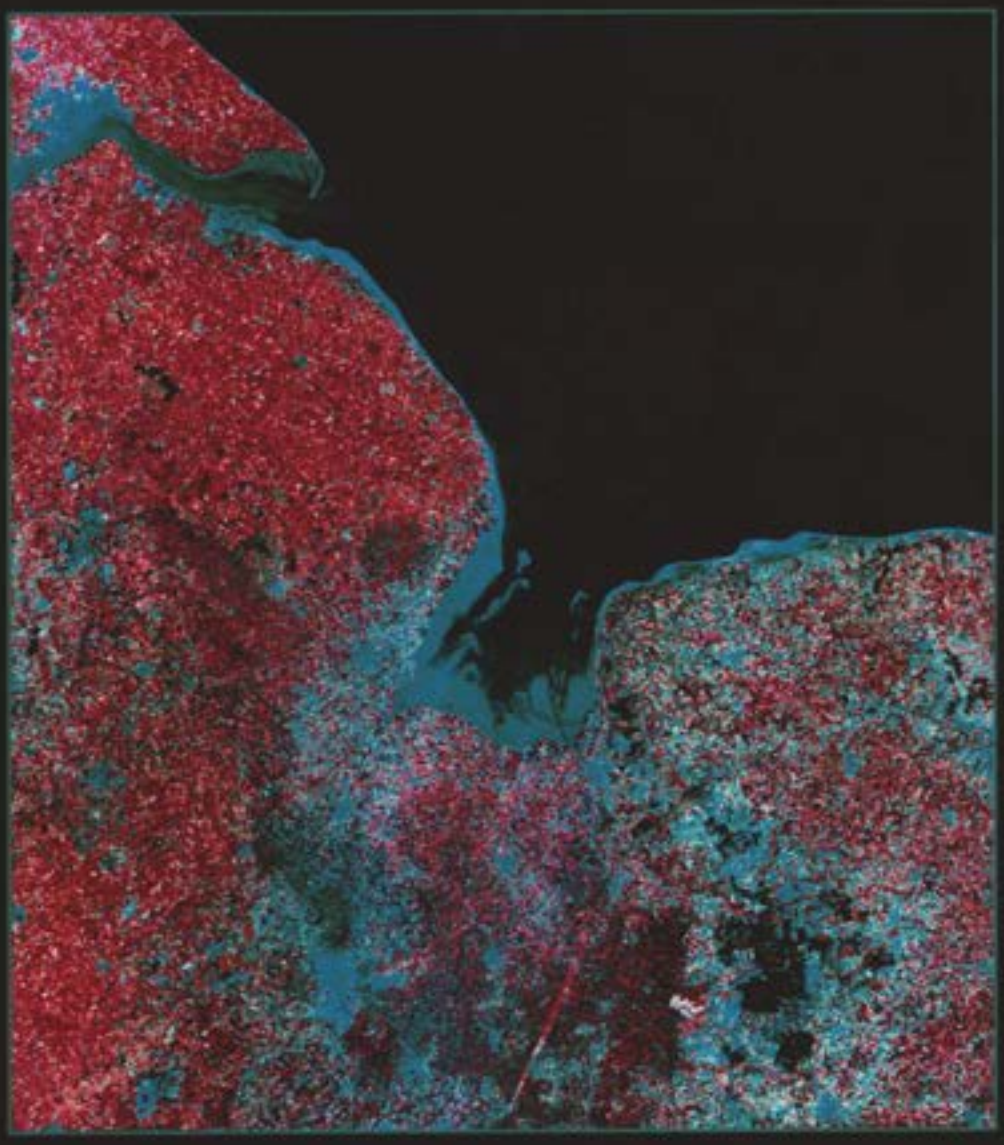
# FENLAND SURVEY

*An essay in landscape and persistence*

David Hall and John Coles



ENGLISH HERITAGE

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1994

ARCHAEOLOGICAL REPORT 1

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# Preface

Survey and excavation in the Fenland of eastern England has a long history and the Fenland Project of 1981–8 is the latest and most extensive of the surveys. It was established and fully supported by the central archaeological authorities (the Department of the Environment and English Heritage). This book summarises the discoveries and offers an opinion on the current state of the Fenland and the prospects for the continuing survival of archaeological remains. It is not a prehistory and early history of East Anglia, but restricts itself to the results of the Fenland Project and its implications for knowledge of the past.

Many people have helped in the preparation of this book. First and foremost are the Fenland Field Officers of Lincolnshire (Tom Lane and Peter Hayes) and Norfolk (Bob Silvester), whose survey results have been combined with those of the Cambridgeshire Field Officer (David Hall). Work in the Suffolk Fens (by Edward Martin) was carried out independently of the Fenland Project, but its preliminary results have been made available to us. We have also used the results of the Project's palaeoenvironmental investigations carried out initially by Anne Alderton and substantially augmented by Martyn Waller. Roy Switsur undertook a major programme of radiocarbon dating for the environmental work. We have used calibrated dates throughout the book.

The survey work was supervised from 1981 to 1988 by a Fenland committee among whose members were Peter Wade-Martins, Brian Simmons, Stanley West, Helen Keeley, Peter Fowler, Ian Longworth, Philip Walker, David Hall (Secretary), and John Coles (Chairman). We particularly thank Geoff Wainwright, who was a major instigator of the project, and Philip Walker who has guided it through the complexities and requirements of English Heritage. In the years 1990–3 the survey project was extended to further evaluation and excavation of selected sites, and preliminary results have been supplied to us by Chris Evans, Charles French, Tom Lane, and Mark Leah.

The text has been assessed and jointly agreed by both of us. Chapters 2 and 6–9 were written initially by David Hall and chapters 1, 3–5, and 10 by John Coles; the joins may be apparent. Major parts of the text have been read by Peter Murphy, Martyn Waller, Frances Healy, Francis Pryor, Richard Bradley, Tom Lane, and Geoff Wainwright, and we are grateful for their useful comments; doubtless some mistakes remain which are entirely our fault. We have also received help in the preparation of the book from Bryony Coles, Tim Williams, Val Horsler, Andrew McLaren, Jenny Glazebrook, Tim Malim, Edward Martin, and Rupert Housley.

The Fenland maps showing the distribution of sites were prepared by Rog Palmer, and we thank him for much advice and assistance in the work, including the supply and selection of aerial photographs. We have borrowed a number of other maps and illustrations from various sources, particularly the Fenland survey volumes, and we are grateful for permission to use these; some have been redrawn. A fold-out map at the end of the book (Fig 101) will help the reader to locate the many areas walked by the Fenland Survey Officers and discussed in chapters 2–9.

One of us (JMC) benefited greatly from early association and discussions with Grahame Clark and Harry Godwin, the two pioneers of Fenland research; we hope that this book adequately builds on their original work. Times have moved on, and many discoveries have been augmented by new approaches to the Fenland. Of primary importance is the continuing encouragement and assistance of English Heritage. There are many other people who, indirectly or directly, aided the survey and therefore the writing of this synopsis; that we do not name them individually is no reflection on a lack of appreciation for their help.

Northamptonshire
and Devon

**David Hall**
**John Coles**
April 1993

# Summary

The Fenland of eastern England was the largest single area of wet lowlands in the United Kingdom. Drainage and cultivation over the past centuries have much reduced the deposits through desiccation and wastage. Archaeological studies of the landscape were initiated in the 1930s but it was not until 1981 that a Fenland Project was undertaken to survey the wetlands of Cambridgeshire, Lincolnshire, Norfolk, and Suffolk. In eight years a number of Fenland Officers walked 250,000 hectares of the Fenland, in association with palaeoenvironmental investigations allied to a radiocarbon dating programme. In 1989–90 the survey results were evaluated, and a programme of field investigations was undertaken thereafter. The results of the field surveys were published in a series of monographs, which are the basis for this volume of synopsis.

The Fenland basin was established through the erosive action of major rivers flowing through to the North Sea. The combined effects of a rising sea level and submergence of the land has resulted in a complex sequence of deposits laid down as beds and bands of silt and peat over the past millennia. Settlement of the Fenland began in the Pleistocene but the main surviving occupation deposits are of the past 6000 years or so. Throughout this period the concept of the fen edge was predominant, with settlement and activity positioned on or near the boundary of dry upslope and wetland below, in an environment offering a variety of opportunitues and problems to early groups.

During the Palaeolithic and Mesolithic, the Fenland basin provided a well-wooded environment with now-extinct river systems carrying water to the sea. Hunter-gatherers occupied selected parts of the Fenland, concentrating on the junction of the basin itself and the slightly raised surrounds, although much of the contemporary surface in the basin is now masked by later deposits. Riverside settlement is also indicated by the distribution of lithic scatters. The beginning of a more settled way of life, involving the introduction of cereal cultivation and particularly that of pasturing of animals, is marked by more concentrated occupations along the fen edge, and low islands off the edge, during a time of increasing submergence of the land as sea level rose and flooding surfaces expanded. In the later third and early second millennia BC the population along the south and eastern fen edge was probably at its prehistoric maximum, and hundreds of industrial and occupation sites and burial monuments have been discovered by the survey. Many areas of potential settlement still lie buried by later silts and peats, as conditions leading to the choking of valleys and silting of flatlands continued to develop.

By the first millennium BC, much of the southern Fenland became a great peat fen and settlement was curtailed, but many objects of stone and metal were deposited in the wet fen. In the period prior to the Roman occupation, there was an expansion of settlement and minor enclosed sites were established in and around the region. Salt extraction industries began to develop in areas subject to marine waters. The Roman period was marked by efforts to organise the Fenland, as settlement, canals, and roads were constructed, including major engineering works and imposing control centres. The declining influence of Rome made little impression on the Fenland way of life, and Saxon settlement shows continuity in location and in the more modest Fenland activities. By the close of the period, the Saxon Spaldas can be identified, and the great Sea Bank was constructed as a first major defence against the sea.

The medieval Fenland was fully settled and utilised, and the siltlands in particular were now intensively occupied. Major canals and other communication routes were established. Many Fenland villages were subservient to major monastic and commercial centres, and abbey records provide clear descriptions of the fisheries, hithes, lodes, and meres of the wet Fenland. Strip fields on the fen edge and siltlands were cultivated and pastureland was also important to the economy. Long droveways linking siltland vills to common meadow grazing are identifiable. Saltmaking was a major industry, and the Sea Bank was extended and strengthened.

In the past 50 years, accelerated drainage and cultivation have exposed many new horizons of ancient occupation on the fen edge and on the islands and roddons of extinct rivers. The traditional pursuits of the isolated and independent 'fen slodgers' have declined to the point of extinction, with almost total loss of wetland character. The remains of these ancient ways of life, and of the more settled small farming communities of the past four to five millennia, are now only accessible through archaeological survey and investigation.

# Résumé

Les plaines marécageuses qui se trouvent dans l'est de l'Angleterre, les Fens, constituent la plus grande superficie de basses terres marécageuses d'un seul tenant de toute la Grande Bretagne. Les dépôts ont beaucoup diminué au cours des siècles passés, ils se sont désséchés, ou ont disparu, à la suite de travaux liés au drainage et à l'agriculture. Les recherches archéologiques dans cette région ont commencé dans les années 1930, mais ce n'est qu'en 1981 qu'un programme a été mis en place dans le but d'étudier les zones de marais des comtés de Cambridgeshire, Lincolnshire, Norfolk, et Suffolk. En l'espace de huit ans, un nombre de responsables des marais ont parcouru les 250.000 hectares de marécages, travaillant en liaison avec des recherches sur le paléo-environnement associées à un programme de datation au radio-carbone. En 1989–90 les résultats de ces recherches ont été soumis à une expertise, et un programme d'étude de terrain a été mis sur pied par la suite. Les conclusions de ces études de terrain ont été publiées dans une séries de monographies, et servent de points de départ pour ce volume de résumé.

Le bassin marécageux doit son existence à l'action érosive d'importantes rivières qui traversaient la région avant de se jeter dans la Mer du Nord. Un niveau marin qui s'élève, des terres qui se trouvent recouvertes par les eaux, c'est l'association de ces deux phénomènes qui a donné comme résultat une suite complexe de dépôts, abandonnés sous forme de couches et de bandes d'alluvions et de tourbe au cours des millénaires passés. L'occupation de la plaine marécageuse a commencé au Pleistocène, mais les principales traces d'occupation qui ont survécu datent environ des 6000 dernières années. Pendant toute cette époque, c'est le concept de bordure de marécage qui était prédominant, les sites d'occupation et les activités se situaient en effet sur, ou près, de la lisière entre la pente ascendante sèche et les marais en contrebas, dans un environnement qui offrait une grande variété d'opportunités et de problèmes pour les premiers groupes d'occupants.

Au paléolithique et au mésolithique, le bassin marécageux consistait en une région bien boisée, dotée d'un réseau fluvial, maintenant disparu, qui transportait l'eau à la mer. Les chasseurs-cueilleurs occupaient certaines parties choisies des marais, ils se concentraient surtout à l'endroit où se rejoignent le bassin lui-même et les terres légèrement surélevées qui le bordent, bien qu'une grande partie de la surface du bassin de l'époque soit maintenant masquée par un apport ultérieur d'alluvions. L'occupation des rives des fleuves est aussi mise en evidence par la répartition des pierres rejetées. L'apparition d'un mode de vie plus sédentaire, qui impliquait l'introduction de la culture de céréales et surtout du pâturage d'animaux, est marquée par une plus grande densité des occupations en bordure du marécage et sur les îlots plats près de la rive, à une époque où les terres étaient de plus en plus souvent submergées et où la superficie inondable augmentait en raison d'une hausse du niveau de la mer. C'est dans la dernière partie du troisième et au début du second millénaire av J-C que la population le long des lisières sud et est des marais a probablement atteint son nombre maximum au cours de la préhistoire; et des centaines de sites industriels et de peuplement, et des monuments funéraires ont été découverts au cours des recherches. Bien des endroits susceptibles de receler des sites d'occupation sont encore ensevelis sous des couches d'alluvions et de tourbe déposées plus récemment puisque les conditions qui ont conduit au colmatage des vallées et au comblement des plaines alluviales ont continué à prévaloir.

D'ici le premier millénaire av J-C une grande partie du Fen le plus au sud était devenue une vaste tourbière et tout peuplement fut interrompu; mais beaucoup d'objets en pierre ou en métal se trouvèrent déposés dans les marais. Dans la période qui précéda la conquête romaine, il y eut une expansion du taux d'occupation et de petits sites enclos de moindre importance s'établirent à l'intérieur et autour de cette région. Des industries d'extraction du sel commencèrent à se développer dans les régions submergées par l'eau de mer.

L'époque romaine fut marquée par les efforts qui furent faits pour organiser cette région de marais, on y construisit des villages, des canaux, des routes, qui nécessitèrent d'importants travaux de génie civil et d'imposants centres de contrôle. Le déclin de l'influence de Rome eut peu d'effet sur la façon de vivre des habitants des marais et la continuité est évidente dans la location et les activités mineures des occupations saxonnes. A la fin de cette époque, on peut identifier les Spaldas saxonnes, et la grande digue fut construite, premier ouvrage défensif majeur contre la mer.

Au moyen âge les Fens étaient entièrement colonisés et utilisés, et les plaines alluviales en particulier entretenaient une forte densité de population. On établit d'importants canaux ainsi que d'autres voies de communication. Beaucoup de villages dans les Fens dépendaient d'importants centres monastiques et commerciaux, et les archives des abbayes fournissent des descriptions précises des pêcheries, embarcadères, chenaux, et étangs des marais. En bordure du Fen et sur les plaines alluviales on cultivait des champs allongés et les pâtures jouaient aussi un rôle important dans l'économie. On a pu identifier de longs sentiers pour troupeaux qui reliaient les villages des plaines alluviales aux prairies où les animaux paissaient en commun. L'extraction du sel était devenue une industrie majeure, et la digue avait été étendue et renforcée.

Au cours des 50 dernières années, l'accélération du drainage et de l'exploitation agricole a mis à jour beaucoup de nouveaux horizons d'anciens sites d'occupation en bordure du marais et sur les îles et le lit des rivières asséchées. Les activités traditionnelles du 'pateaugeur' des Fens, indépendant et isolé, ont décliné jusqu'à extinction et jusqu'à la quasi-totale disparition du caractère spécifique au marécage. Maintenant seules des études et des recherches archéologiques peuvent nous permettre d'accéder aux vestiges de ces anciens modes de vie, et à celui plus sédentaire des petites communautés agricoles des quatre ou cinq derniers millénaires.

**Traduction: Annie Pritchard**
December 1993

# Zusammenfassung

Das größte geschlossene Niedermoorgebiet Großbritanniens, das sog. Fenland, befindet sich in Ostengland.

In den letzten Jahrhunderten haben Entwässerung und Landwirtschaft eine Austrocknung und eine Schrumpfung der Feuchtbodenablagerungen verursacht. Die archäologische Untersuchung dieser Landschaft begann in den dreißiger Jahren, aber erst 1981 wurde ein Fenland-Projekt initiiert, um eine systematische archäologische Prospektion im Feuchtbodengebiet von Cambridge, Lincolnshire, Norfolk, und Suffolk zu verwirklichen. In acht Jahren haben mehrere Projektangehörige 250.000 ha des Fenlandes begangen, um paläoölologische Untersuchungen, verbunden mit einem Radiokarbondatierungs programm, durchzuführen. 1989–90 wurden die Ergebnisse dieser Prospektion ausgewertet, und daraufhin wurde eine Reihe von Geländeuntersuchungen unternommen. Die Ergebnisse der Prospektion wurden in einer Monographenreihe veröffentlicht, die als Basis für den vorliegenden, zusammenfassenden Band dient.

Das Fenlandbecken entstand infolge der Erosion, verursacht durch größere Flüsse, die das Gebiet auf ihrem Weg zur Nordsee durchflossen. Das Zusammenspiel von ansteigendem Meeresspiegel und sich senkendem Land ergab eine komplexe Abfolge von Ablagerungen, die sich während der Jahrtausende als Schichten und Bänder von Lehm und Torf niederschlugen. Die Besiedlung des Fenlandes begann im Pleistozän, aber die heute erhaltenen Kulturhorizonte wurden erst in den letzten 6000 Jahren abgelagert. Während dieser Zeit konzentrierten sich die Besiedlung und die Aktivitäten in der Nähe oder am Übergang vom trockenen Hang zum tieferliegenden Feuchtgebiet. Diese Übergangssituation zwischen zwei Naturräumen ergab für die frühen Bevölkerungsgruppen vielseitige Möglichkeiten aber auch Schwierigkeiten.

Während des Paläolithikums und Mesolithikums war der Naturraum des Fenlandbecken gut bewaldet und von jetzt verschwundenen Flußsystemen, die ins Meer entwässerten, durchzogen. Jäger und Sammler besiedelten nur ausgewählte Teile des Fenlandes, vorwiegend die Übergänge zwischen dem Becken und der leicht erhöhten Umgebung. Heute ist jedoch ein Großteil der damaligen Oberfläche durch jüngere Ablagerungen bedeckt. Eine Besiedlung der Flußufer wird auch durch Fundstreuungen von Feuersteinartefakten belegt. Der Beginn einer seßhafteren Lebensweise, die die Einführung von Getreideanbau und insbesondere von Weidewirtschaft beinhaltet, zeigt sich durch verstärkte Siedlungskonzentrationen am Fenland und auf den vorgelagerten niedrigen Inseln, zu einer Zeit der zunehmenden Überflutung tieferliegender Landstriche infolge der Meeresspiegelanhebung. Im ausgehenden dritten und im frühen zweiten Jahrtausend v. Chr. erreichte wohl die Bevölkerungsdichte entlang des südlichen und östlichen Fenrandes ihren vorgeschichtlichen Höchststand. Hunderte von Siedlungs – und Werkplätzen sowie Grabdenkmäler sind im Zuge der Prospektion festgestellt worden. Viele potentielle Siedlungsgebiete liegen jedoch unter jüngeren Lehm – und Torfablagerungen begraben, da die Bedingungen, die zur Auffüllung der Täler und zur Bedeckung des Tieflandes fürten, andauerten.

Bis zum ersten Jahrtausend v. Chr. hatten sich große Gebiete des südlichen Fenlandes in ein ausgedehntes Niedermoor verwandelt. Dadurch wurde die Besiedlung eingeschränkt, jedoch wurden viele Stein – und Metallgegenstände im feuchten Moor deponiert. Gegen Ende der vorrömischen Eisenzeit fand eine Besiedlungsausdehnung statt; kleine eingerfriedete Siedlungen wurden innerhalb und außerhalb des Gebietes angelegt. In den Gebieten, die dem Meereswasser ausgesetzt waren, entstanden Salzgewinnungsanlagen. Die Römerzeit war durch die Bemühungen gekennzeichnet, das Fenland zu erschließen. Zu diesem Zweck wurden Siedlungen, Kanäle und Straßen angelegt, die bedeutende Ingenieurleistungen und eindrucksvolle Kontrollzentren darstellen.

Die Abnahme des römischen Einflusses hatte kaum Auswirkung auf die Lebensweise im Fenland. Die sächsische Besiedlung weist eine Platzkontinuität auf, und die einfache einheimische Lebensweise setzte sich fort. Gegen Ende dieser Periode läßt sich der sächsische Stamm der Spaldas nachweisen. Der große Seedeich (Sea Bank) wurde als erster größerer Schutz gegen Meeresüberflutungen errichtet.

Im Mittelalter war das gesamte Fenland bevölkert und genützt. Insbesondere die Gebiete mit Lehmböden wurden jetzt dicht besiedelt. Größere Kanäle sowie andere Verkehrswege wurden angelegt. Viele Dörfer des Fenlandes waren von bedeutenden Klöstern und Wirtschaftszentren abhängig. Urkunden der Abteien liefern detaillierte Beschreibungen über Fischereien, Häfen, Moorkanäle und weiher des Fenlandes. Am Fenrand und auf den Lehmböden wurden Streifenäcker bearbeitet. Das Weideland hatte ebenfalls große wirtschaftliche Bedeutung. Noch erkennbar sind die langen Viehtrifte, welche die Siedlungen mit der gemeinschaftlichen Viehweide verbanden. Die Salzgewinnung war eine bedeutende Industrie. Der Seedeich wurde erweitert und verstärkt.

In den verangenen fünfzig Jahren haben zunehmende Trockenlegung und Kultivierung viele alte Besiedlungsschichten am Fenrand, auf den Inseln und am Ufer der verschwundenen Flüsse neu freigelegt. Die traditionellen Gewerbe der isoliert lebenden und unabhängigen Feneinwohner (genennt fen slodgers) sind fast vollständig verschwunden und somit auch die typische Lebensweise im Fenland. Überreste dieser alten Lebensweise sowie die der seßhaften bäuerlichen Gemeinschaften der letzten vier bis fünf Jahrtausende sind jetzt nur noch mit Hilfe archäologischer Prospektionen und Untersuchungen zugänglich.

**Übersetzung: Jennifer Göbel and Ursula Francke**
January 1994

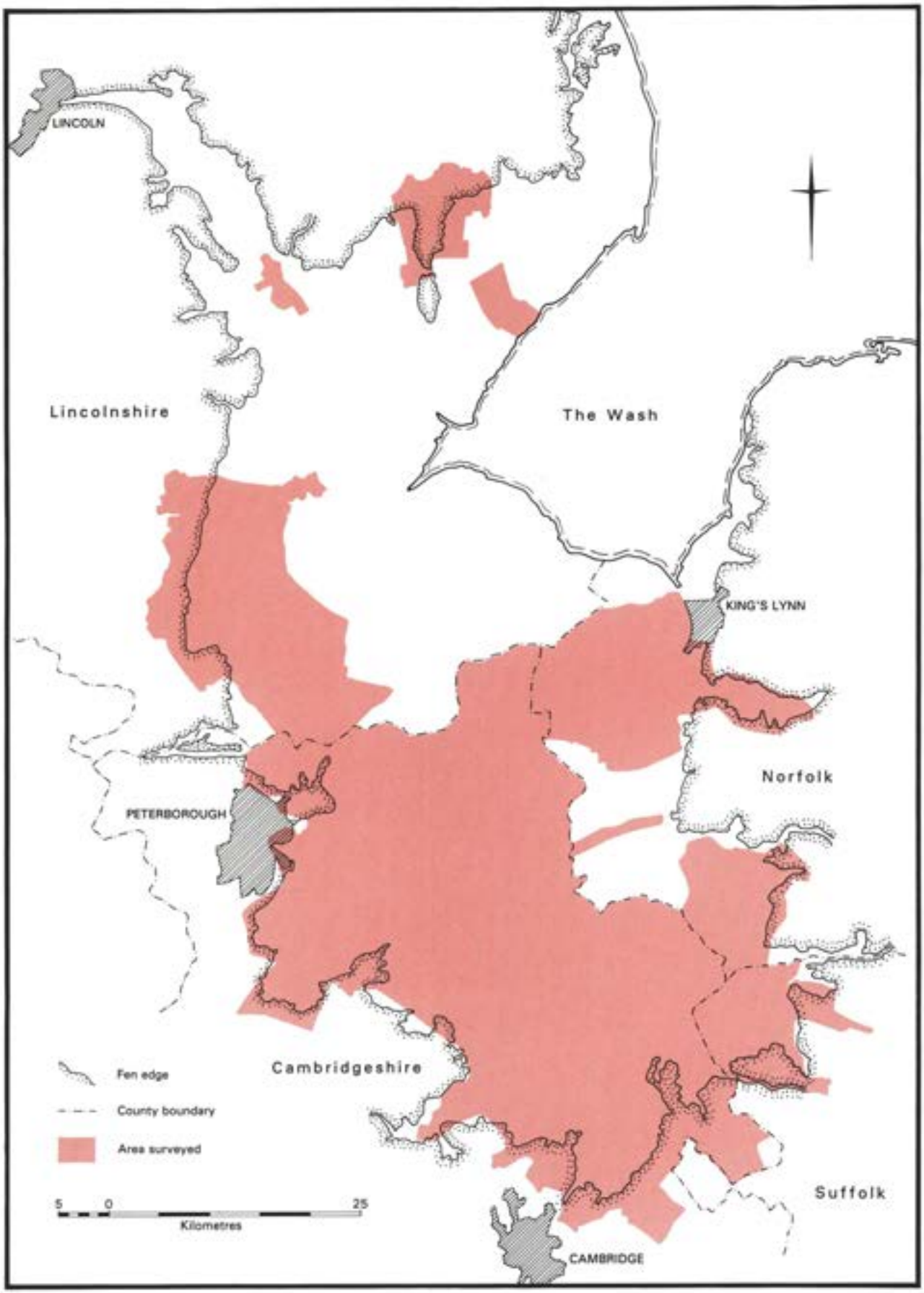



*Fig 1 The Fenland counties of England; the areas walked by the Fenland Project Officers are shown in red*

# 1 The face of places

> The Face of Places, and their Forms decay;
> And that is solid Earth, that once was Sea:
> Seas in their turn retreating from the Shore,
> Make solid Land, what Ocean was before.
> (Metamorphoses)

The Fenland (Fig 1), that flat unpromising wilderness of eastern England, has always gathered unto itself an aura of uncertainty, of mystery. To some unwary travellers of the past, it must have proved fatal, the quaking featureless bogs swallowing up those who ventured, guideless and unsuspecting, into the watery fastness, following the flickering will o' the wisp. To others, who knew the character and treacherous nature of the bogland, the land, more water than land in reality, provided security as well as a form of living that was richly varied if sometimes unpredictable. And even that uncertainty, in a way, could be perversely foreseen, in the dramatic episodes of flooding that could change land to lake in a moment of time, could engulf a homestead, carry away a solitary hunter, and submerge a whole landscape. Further seawards, in the siltlands that ran unheedingly into the tidal flats of the Wash and North Sea, the land was seemingly more stable, seemingly more trustworthy, yet here too the onrush of the sea's highest tides, storm-driven or seasonal, could force back the sluggish river flows to overwhelm the land.

At other points in the long history of the Fenland, the land could stabilise here and there and provide a living for small communities that was fruitful, pleasant, and uncomplicated. The waving grasses, flowers, and reeds, winding streams, ponds, and scattered woodlands housed a myriad of plants and animals that could be nurtured and harvested for food, industry, and shelter. Independent, isolated, harmonious, the Fenlanders in this idealised scene could prosper and multiply, cosseted and protected by a bountiful nature. The truth about Fenland life, of course, lies somewhere between these extremes of stress and plenty. It is the purpose of this book to set out some of the evidence for Fenland settlement and activity from the earliest times.

## Geography

The Fenland is in origin a flooded plain bounded by hard rock – chalk to north, east, and south, and Jurassic clays and limestone to the west. It began its chequered existence as a result of the erosive powers of ancient rivers flowing into a prehistoric northern sea and creating an inlet which allowed marine incursions to flood into a land itself undergoing geological submergence. The Fenland basin, neither evenly concave nor uniformly flat, incorporates various more resistant rocks, which project above the general level, forming islands that we now identify as the Isles of Ely and March, among many others.

Through time, the rivers that drained much of the Midlands and East Anglia flowed into and through the Fenland basin, bringing in sands and gravels and providing the freshwater that, where ponded and stilled, encouraged plant life and the formation of beds of peat. Also at work were the marine waters of the North Sea, flooding in and depositing beds of silts and clays that here and there abutted the freshwater deposits and created a complex series of formations.

## The Fenlanders

On the islands and edges prehistoric people made attempts to grasp the offerings and opportunities of the Fenland waters and lands. Vivid indications of their lives are afforded by historic descriptions of the inhabitants of the Fenland in the centuries before drainage seriously and irreversibly affected the area (Darby 1974; 1983).

### 'A huge bigness'

We begin to discern these pictures of the ancient Fenland in the writings of the biographers of St Guthlac. Guthlac is perhaps the best known of those early explorers who, seeking a solitude that would fortify their faiths, found in 'a hideous fen of a huge bigness' enough marsh, bog, black pools of water, and winding streams to satisfy and test the most fervent of believers (Colgrave 1956). Fortunately for Guthlac, and for those who came before and after him, there were wooded islands too upon which to found their religious houses. The abbey of Crowland, established by Guthlac in 716, was foreshadowed by Ely (673) and, on the fen edge, Medeshamstede (Peterborough, 655). The Venerable Bede for obvious reasons identified Ely in the eighth century as 'the eel district', the island settlement entirely encompassed by marsh and ponds (Bede, **4**).

Eels and isolation were not the only attractions of such watery retreats, though the annual render of Wisbech in 1086 was 33,000 eels. The meres and straggling streams sheltered a myriad of fish and fowl, reed and rush. The fisheries were worked by boat, weirs, and weels (wicker traps). An Ely monk mentions 'innumerable eels, large pike, even pickerel, perch, roach, burbots, and lampreys which we call water-snakes' (*Liber Eliensis*). The sturgeon, reserved in theory for the king, also inhabited the Ely waters, as did the swan, of equal status. Wildfowl, nesting among the reed beds and stands of rush, formed an important part of the Fenland harvest, and geese, coots, teal, dabchicks, herons, and ducks were regularly taken in huge numbers. Egg collection was a task for many, and an unnamed boy drowned in the fourteenth century when searching for ducks' eggs on *ligni pedes* (stilts?) in the deeper waters off an island (Darby 1974).

The annual yield of plants was also impressive, particularly for building materials. Reeds, rushes, and sedges were extensively used for thatching, purple moor-grass for cattle litter, willow withies for basketry and fences, alder for poles and rods, and a wide variety of wild seeds, nuts, and berries were collected for consumption. Peat, the partially decayed and consolidated plant remains of previous centuries, provided fuel and building blocks where conditions were dry enough to allow turbaries to be developed.

Parts of the peatland which were free of water in the summer were also eagerly exploited as grazing for cattle. Winter floods could dampen only the land, not the enthusiasm of the peasants, because flooding enhanced the quality of the pastures. These lands, generally just off the fen uplands or islands, were in theory considered to be common ground, for all men to use, but became territories fiercely defended by peasant associations, or the monasteries, against neighbouring factions. Such common lands were widespread in the medieval period.

## 'Ground frome the sea'

The siltlands to the north and east of the peatland provided a firmer base for medieval settlement than did the peatlands. Whereas Domesday records no peatland settlements, except those sited upon islands or upland edge, there was a line of settlements on the siltland around the Wash (Fig 2). Each had its share of ploughteams that tilled the light clay soils. Freshwater meadows were jealously acquired and guarded. Towards the sea lay saltmarsh, building up with each spring tide and providing a precarious if rich grazing for cattle. The sea itself, shallowly lapping the shore, provided salt by a process of filtering salt-saturated sand to produce brine, and then evaporating the liquid. Peat provided a handy fuel, and the salt-evacuated sands formed mounds (salterns) which could become pasture. Coastal, estuarine, and deep-sea fishing also provided seasonal and all-year harvests for coastal settlers. Yet the inland flanks of the siltland were equally important, combining freshwater-enhanced grazing and arable lands for many communities where the silts were thin and the peats lay exposed or near the surface. Common lands here were soon agreed, in principle, by medieval peasant associations; the 'seven towns of Marshland' of the Norfolk fen were one such combination (Beloe 1895).

Yet the communities that settled on the siltland were very vulnerable to the dangers of flooding from the sea, just as their contemporaries to the south feared the swamping of their boglands. The engulfing of men and cattle in the siltland was an often repeated event, and even villages raised above the general level could be overrun by terrible floods. The medieval records tell of the 'outrageousness of the sea' in its tidal violence and fearful suddenness (Dugdale 1622). It was little better inland where river outflows were inadequate to cope with heavy rainfall or tidal pressures, and many records

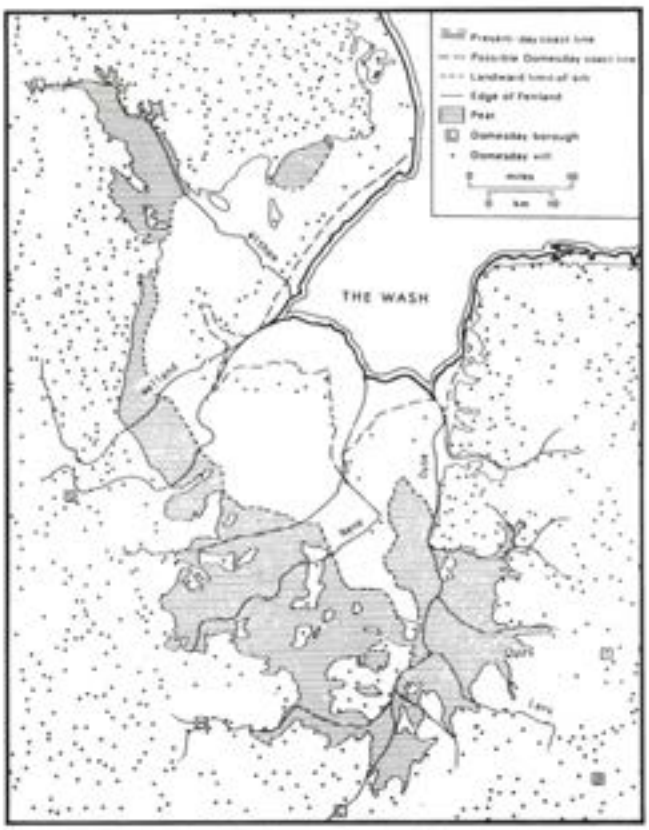



*Fig 2 The Fenland, showing the siltland and peatland, Domesday settlements on the upland and along the contemporary coastline, some ancient waterways (not always flowing in these channels), and the Domesday boroughs of: L Lincoln; S Stamford; H Huntingdon; C Cambridge; B Bury St Edmunds; T Thetford (based on Darby 1983 with additions)*

tell of freshwater floods that overwhelmed vast holdings even where dikes had been built to exclude the waters; indeed, the stagnation of freshwater floods was a longer-lasting threat to livelihood than was the more violent yet transient flooding by the sea.

## A common life

We may wonder at the persistence of the Fenlanders who resisted nature itself by carving from the land and water an existence that was characterised by stubbornness, endurance, and not a little ingenuity. Doubtless there was also a measure of tranquillity in their lives, an acceptance of the will of nature, and an appreciation of her bounty during the many periods, mostly unrecorded, when the waters were calm on all sides. Wetlands were then a source of wealth that could hardly be surpassed by any other natural environment. Texts of the sixteenth and later centuries speak of a Fenland well settled, of traditions strongly defended, of the isolation of communities only broken by the slow taming and channelling of waterways (Darby 1974).

The Fenland had by then sustained humans for well over 5000 years, and yet it retained almost all its wild character. It had changed but little in its coarseness of response to the weather and the passage of the seasons, or in the amplitude of these effects; it was still a land

dominated by water, the great leveller. Too large and too powerful for humans yet to have severely affected it, the Fenland lay more or less in its natural state, the result of a long and complex set of environmental episodes that had introduced, and removed, differing deposits of freshwater and marine origin. Yet here and there, by the seventeenth century, were small areas attacked by the Fenlanders, ditched and banked in places, in efforts to control even a small patch of land and make it suitable for planting, tending, or cultivation.

By the seventeenth century, records were more specific and provide clear descriptions of the Fenland. The peat fens of the south were hospitable in summer and abounded in pastureland, but in winter their character changed, as it had always done, to cold and menacing floodlands. The peasants who had settled on the islands of the peat fens were described as 'rude, uncivil and envious to all others' (Darby 1974); they spent their lives grazing their livestock, fishing and fowling, and maintaining that independence of spirit demonstrated centuries before by Hereward and his followers. Turf was dug for fuel and building, sedge collected for burning, and reeds, alder, and willow gathered for buildings, fences, and river bank supports. The air may have been 'unwholesome', but life could be comfortable at times, compact always, and the islands and upland edges served in times of flood as reservoirs of stability.

In the siltlands of the east, small-scale drainage had helped to secure the rich soils for grazing cattle and sheep. To the north, the siltlands were equally useful, with the advantage here of flats on the long shoreline of Wash and North Sea for wildfowl, grass, and fish. The flats provided an immensely long and variably wide zone of resources, but were only available to those accustomed to exposure to elemental forces. The wide expanses of fen were also exploited.

The inland peat country was less threatened by devasting floods or unfettered winds, and lay higher and swollen by rain and stream waters. It always had 'foule and flabby quaremires, yea and most troublesome Fennes, which the very Inhabitants themselves for all their stilts cannot stalke through' (Camden 1637). From Crowland, cattle were grazed on drier patches and visited by boat, and the main business of the people was gathering the harvests of fish and fowl. So rotten was the ground that a man could 'thrust a pole down right thirty foote deepe' (ibid).

A rambling verse by Michael Drayton (1622) provides an impression of the undrained fens:

> the toyling Fisher here is tewing of his Net
> The Fowler is imployed his lymed twigs to set.
> One underneath his Horse, to get a shoote doth stalke;
> Another over Dykes upon his Stilts doth walke:
> There other with their Spades, the Peats are squaring out,
> And others from their Carres, are busily about,
> To draw out Sedge and Reed, for Thatch and Stover fit'.

## The waterways

Ancient, now extinct waterways in the Fenland provided the only reliable routes between the Wash coastline and the inland areas (Fig 3). The medieval Wash extended south as an estuary, funnelling in to a point now 20km from the present coastline. Here, at modern Wisbech, the ancient courses of the Lark, Cam, and Little Ouse were flowing as the Old Wellenhee, joined a little upstream by the Nene and Western Ouse. The outward flow of the Wellenhee or Wellstream was always susceptible to tidal pressures and, through time, the deposition of sands and silts. Some few feeble attempts were made in medieval times to control the outflow but these could never resist the channelling effect of the Wash storms and tidal surges. It was better in the northern siltlands, where the Witham and Welland rivers had clearer runs from the uplands to the coast. Whatever the problems, waterways provided the most reliable means for transport and communication. By the fourteenth century, cloth, lead, and tallow were among the goods carried to Ely along the waterways, and Barnack stone was transported by water from quarries near Peterborough to Ely, Lincoln, Crowland, and many other places where religious houses were under construction. Along the Wellstream and Ouse came merchantmen from the continent, from Bruges, Cologne, and Rouen, bringing cloth, hides, silk, and iron to the fairs at St Ives and Sturbridge (Cambridge). Much of this travel was along the natural river courses, with perhaps an occasional dredging or clearing here and there and more substantial channelling for the transport of stone.

The first to effect a change to the major natural drainage was Bishop Morton of Ely. In about 1490 he drove a channel from Stanground (Peterborough) to Guyhirne, creating a more direct flow for the river Nene. Morton's Leam was 12 miles long, 40 feet wide, and 4 feet deep (Fig 3, lower right). The Bishop also built a tower at Guyhirne from which he could observe his men at work; the tower stood until 1810. The Leam eventually failed, and it was not until 1600 that the first real and continuous efforts were made to tame the floods, open the Fenland, and exploit the natural wealth that had for long been hidden (Darby 1940; 1983).

### *The exsiccation of the draines*

By 1650, major drainage channels had been cut through the southern Fenland to try to drain substantial areas. The New Bedford or Hundred Foot River, which was one of these, initiated three centuries of drainage, the effects of which we see in the Fenland today. At first the results of draining were universally applauded: Thorney 'was bordered with the Fenns, but the Fens now environing it are by the Adventurers draynings, made so drye, that there are of all sorts of corne and grasse, now growing hereon, the greatest plenty imaginable' (Dugdale 1657).

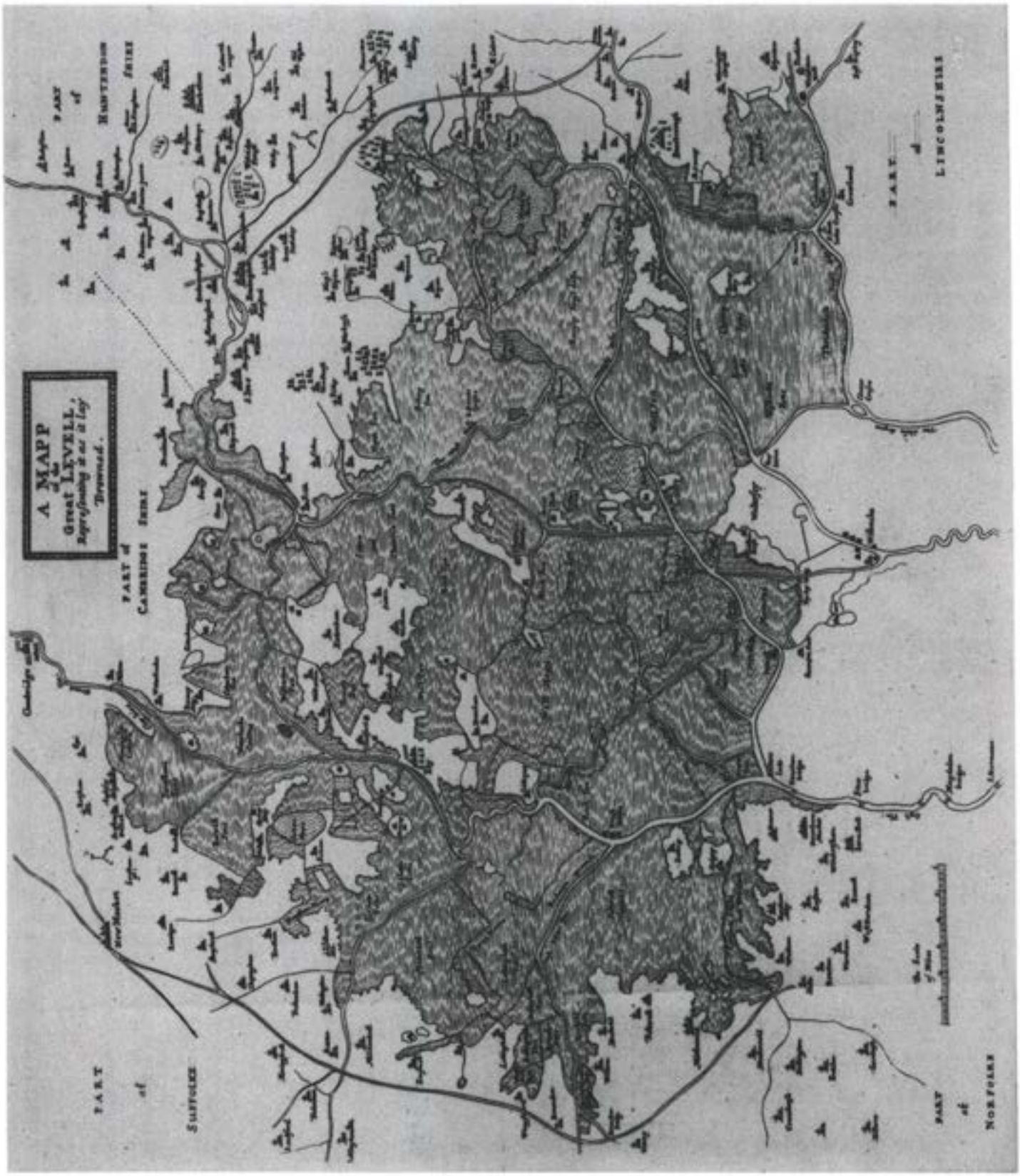



*Fig 3 Dugdale's 1772 map of the southern Fenland (north is at bottom of map), showing the 'Great Levell as it lay Drowned'; north is at the bottom of the map, Cambridge at the top, and Wisbech at the bottom*

It was even anticipated that the rude and uncivil Fenmen would change their ways (Anon 1685):

> There shall a change of Men and manners be;
> Hearts, thick and tough as Hydes, shall feel Remorse,
> And Souls of Sedge shall understand Discourse,
> New hands shall learn to Work, forget to Steal,
> New leggs shall go to church, new knees shall kneel.

Predictably, the success of one enterprise did not lead to the universal realisation of the other. Nor was the drainage in the end successful, and at Thorney, scene of so much improvement, the restless floodwaters once again intruded. In 1673, 'Many cattle are drowned, stacks of grain and hay are swimming or standing a yard keep in water, all the cattle are driven to small banks, the poor people's houses are full of water, and they are forced to save themselves in boats' (Darby 1983). To the north, the records of failure are not so inexorable or dramatic. The siltlands had been tamed, the rivers controlled by 'Dreins and Gotes', and saltmarsh reclamation projects gradually expanded the working lands of the settlers. Pastureland here fed huge numbers of cattle and sheep, hemp and flax were grown, and fowl and fish were taken from marsh, shore, and waters. Although seasonal floods still caused distress and damage, the region seemed well set for steady, indeed spectacular, expansion and improvement.

In fact, the seeds of destruction had already been planted all over the Fenland. What we see today is the result of those seeds, a destructive consuming agent that has reduced the Fenland to a skeleton of its former self. Peat, the base of much of the southern Fenland, consists of waterlogged, partly-decayed plant remains. Drainage, in removing that waterlogging, initiates the decay of the peat. Shrinkage of the body of peat lowers the surface of the land and exposes it to more flooding, but it is the wasting away of the dried peat surfaces, through bacterial and other actions including windblow, which is the more serious and profound mechanism of destruction.

There is no need here to go into the methods used in the continued efforts to drain the fens, decade by decade, century by century, as the surfaces of the peat fell. The better the drainage the more rapid the wastage. In 1665, a complaint was expressed as follows: 'in our dry years the bottoms (of the Dikes) rise two foot'; the response given was: 'it is not your Dikes bottoms which rise, but your Grounds which sink'. Correct, but the response continued: 'therefore when your Grounds are thus sunk, with lying dry, bottom then your Dikes two foot' (Dodson 1665).

The bottoming could not continue of course, and as time went on the draining of the peat fen became increasingly difficult, with the rivers embanked to prevent overflow on to the land which was now was at a lower level than the streams. Engines, driven by wind, steam, and then diesel and electricity, lifted the water from the fields into the elevated rivers, and there was ever more risk of catastrophic floods by bank failures at times of high tidal and rainfall pressures.

> While drainage worked, as it did,
> The patient FEN-MAN, who endur'd long time
> The various hardships of the wat'ry clime,
> Whose slaught'ring gun and faithful dog had fed
> His wife and little family with bread,
> Now holds the plough, turns up the moory soil,
> And finds a vast increase reward his toil.
> His fields are cropt with diff'rent sorts of grain,
> His sheep and oxen graze the chearful plain.

But again and again the fight against gravity was lost, and the fen returned to its former state:

> The moory soil, the Wat'ry atmosphere,
> With damp, unhealthy moisture chills the air.
> Thick, stinking fogs, and noxious vapours fall,
> Agues and coughs are epidemical;
> Hence every face presented to our view
> Looks of a pallid or a sallow hue. (Anon 1770)

And so it continued, this battle between uncomprehending men and a patient but confident nature. Technology developed to counter each threat and the Fenland continued to suffer. Lands fell, banks grew ever thicker, water was forced against its natural laws, and crop and animal yields increased, fortified in time with chemicals as the soils degenerated. Still the drying peats disappeared in the wind and the surfaces shrank, until today much of the peat fen lies like a desiccated corpse, a thin skin of peat stretched over the skeleton in some places, the bare bones of bedrock exposed in others. Its arteries, which once carried life to those limbs and organs, are detached now, and the water is dragged hurriedly along channels now raised above the drying frame.

In time, the peat fen will disappear, and a reminder of ancient days and human endeavour will pass from our view. The relics of the earliest times will remain only as dried-out fragments, archaeological curiosities, in a land incapable of our comprehension. Only through the efforts of historians, prehistorians, and environmentalists are we able to describe Fenland lives of the past millennia. The traces of those lives have survived only in fragments, and in conditions far removed from those where they once lay. This is why the predrainage records of Guthlac and his successors are so valuable to us in our efforts to interpret the stark fragments of the past, those broken flint tools, those sherds of pottery, those burnt lumps of clay and stone, and those other signals of past lives which, though still in part comprehensible, are increasingly incoherent.

## Studies of the Fenland

Although the history of the Fenland had excited the curiosity of a number of antiquaries and natural historians, most of their work was concerned with the

medieval exploitation, the idiosyncratic character of specialised plants and animals, and the devastating floods of historic times. In 1878, however, Miller and Skertchly in *The Fenland past and present* provided a first view of a multi-disciplinary approach, not integrated but expansive; they were already lamenting the loss of the natural habitats unique to the Fenland which were then being degraded by drainage, cultivation, and a lack of sympathy for Fenland traditions. A different approach was taken by Fox in his 1923 monograph *The archaeology of the Cambridge region*. This was an early expression of the importance of studying human settlement in relation to changing environmental conditions, and of the use of distribution maps to emphasise the power of the environment in controlling human expansion and exploitation. In both these books, separated by almost 50 years, the role of the environment was stressed; yet to read them today is to glimpse two different worlds of history and archaeology, antiquarian and human on the one part, geographical and theoretical on the other. Both books have proved fundamental to all subsequent studies of the Fenland.

The first concerted effort to come to grips with the opportunities for Fenland studies, and to respond to the all-too-evident deterioration of the ancient soils, was initiated in June 1932 in the Upper Parlour of Peterhouse, Cambridge. Here there met a small band, who, like all good university scholars, formed themselves into a committee to debate the issues. But, unlike most of their breed, this committee set to work, and practical work at that, and accumulated more and more members as the work progressed. Ultimately there were 42 specialists involved in the Fenland Research Committee. The Committee survived only from 1932 to 1940, and was never revived after the end of the 1939–45 war. Yet in its eight years of work much progress was made, and the foundations were laid for individual work in the years following until in 1981 its successor body, the Fenland Project, was initiated.

The aims of the Fenland Research Committee were to investigate the relationship of culture and environment, the interaction of human groups with fen landscapes, over the ten millennia represented in Fenland deposits. The Committee was strongly anthropological, focusing on the responses of human societies to the evolution of the landscape through the 'laws' of natural succession. This succession, the alteration of wetlands from reed swamp to fenwood to raised bog, interspersed in places by episodes of marine inundation and all the while subject to minor local variations, was itself under scrutiny by the Committee. One of the members, Harry Godwin, commented: 'The pioneer scientist has the advantage of beginning in total ignorance' (quoted in Godwin 1981); this, however, was an overstatement in that the Cambridge group had already begun, as individuals, to develop a wide range of scientific studies now brought together and applied to the Fenland problems. The major problems were stated to be (Phillips 1951): 'the relationship of man to the area since post-glacial times'; 'the explanation of the recurrent occupations and abandonments of the fen area'; 'the question of the extinct forests which once covered large tracts of the area'; 'the question of the relations in level between land and sea at different times'; and 'the history of the formation of the North Sea'. 'The prime importance of the cartographic aspects of its work', and 'the use of the air-photograph in archaeological research' were also recognised as needing attention.

It is easy now to understand how important it is to involve the natural sciences in archaeological investigations, and indeed any work which excludes botanical, zoological, geological, geographical, chemical, and geophysical studies is today considered inadequate in principle. In 1930, however, few if any archaeological projects included the whole range of potential studies. Here the Fenland Research Committee truly pioneered the practice and establishment of archaeology as a scientific discipline. It was one of the first archaeological research projects to involve palaeoenvironmental studies as an integral part, indeed as an instigator, of research. Among the leading university workers of the committee were Grahame Clark (later to be Disney Professor of Archaeology, Master of Peterhouse, and knighted) and Harry Godwin (later to be Professor of Botany and to be knighted for services to that subject); but Major Gordon Fowler (water transport manager of a sugar beet factory at Ely) took the lead in making discoveries and arranging field visits. Godwin (1978) recalls how the visits were informal, exciting, and productive in scientific information:

> When a site he (Fowler) had visited seemed to merit closer attention telephone calls would inform the members of the committee most likely to be concerned and next day with gum-boots, spades and peat-indifferent clothing a small party would rendezvous at some agreed point, to be led to the site and there investigate, measure, photograph and sample as seemed necessary.

Other committee members included C W Phillips (later Archaeological Officer of the Ordnance Survey, and excavator of Sutton Hoo), O T Jones (Professor of Geology), W A Macfayden (then pioneering studies on fossil foraminifera), J A Steers (Professor of Geography), and O G S Crawford (Ordnance Survey officer and pioneer of aerial photography).

The Fenland research carried out during those heady years was, for the first time in Britain, truly interdisciplinary. This group of workers was the first to recognise that archaeological sites could only be properly understood in their environmental setting, with efforts made to establish a chronological framework into which all the discoveries and observations could be fitted. Pollen analysis was introduced to British research in the fens, through Dr and Mrs Godwin's work, and the excavations at Shippea Hill by Grahame Clark for the committee were instrumental in establishing multidisciplinary research as the foundation of the growing subject of archaeology (Clark *et al* 1935).

The site of Shippea Hill had been known for some time, from the recovery of prehistoric artefacts on sandhills emerging from the shrinking peats (Fig 4). The deduction was that as sand island occupations took place over time, debris would percolate out into the developing peat fen surfaces at various relevant levels. The excavations demonstrated the existence of Mesolithic flints in a lower peat at a depth of 5m, a Neolithic potsherd stratified well above these, and, separated from them by a thick buttery clay, Bronze Age flints in an upper peat. The photographs of the deep sounding, carefully stepped and entirely without shoring, still excite amazement both for the stratified finds and the vertical faces of wet peats and soft clays. Gordon Fowler had made special studies of extinct river courses in the area, and could point to the consistent presence of Romano-British pottery in the old river silts (Fowler 1932); hence, four phases of ancient Fenland occupation could be demonstrated in the immediate area of Shippea Hill, each in its particular environmental setting, and this was the basis for all the work of the Fenland Research Committee and its successor, the Fenland Project.

## The Fenland Project

In 1976, a Fenland Field Officer was appointed to undertake a preliminary archaeological survey of the Cambridgeshire Fenlands. Its establishment may be of some interest. The Area Archaeological Advisory Committee for Cambridgeshire, Essex and Hertfordshire had before it a set of proposals, in 1975, for new appointments and work in the region. The meeting dragged on, and at the very last minute a proposal was made by John Coles and John Alexander that the post of Fenland Field Officer should be top priority; more by exhaustion than commitment, the meeting agreed. The proposal was adopted by the Ancient Monuments branch of the Department of the Environment, principally through the good offices of Geoff Wainwright. David Hall's post was very much an experimental one because, although it was widely acknowledged that Fenland deposits were eroding, the archaeological content of those vanishing soils was to a great extent unknown; archaeological evidence did exist but 'was it worth the toss', as the dilemma was expressed by several of the uncommitted and unconvinced. The discoveries which were soon made demonstrated beyond all doubt that the survey had to continue. Among the many 'new' sites found in fieldwalking, the Mesolithic site at Crooked Bank near Littleport, over a hectare of settlement debris disappearing under a protective cover of peat, was matched by a Neolithic site at Swaffham Prior which yielded 35 polished stone axes and thousands of flints. Barrow fields of up to 25 burial mounds, emerging from the shrinking peats at Borough Fen, and the recognition of Iron Age sites, previously thought not to exist in the region, including 10ha of occupation debris at Honey Hill, Chatteris, indicated that prehistoric settlement had been continuous. Numerous salterns near Wisbech, reflecting the incoming saltwater flooding horizons, and other Roman sites were, in a way, put into a wider context by the discovery of the remains of a huge Roman building at Stonea, with roof tiles and building rubble covering an area 50m in diameter and fully 1m high. All these discoveries, and Saxon and medieval finds too, were put into their environmental setting by the first explanation of the variability of peat and clay deposits, representing the ebb and flow of the sea and its influence well inland.

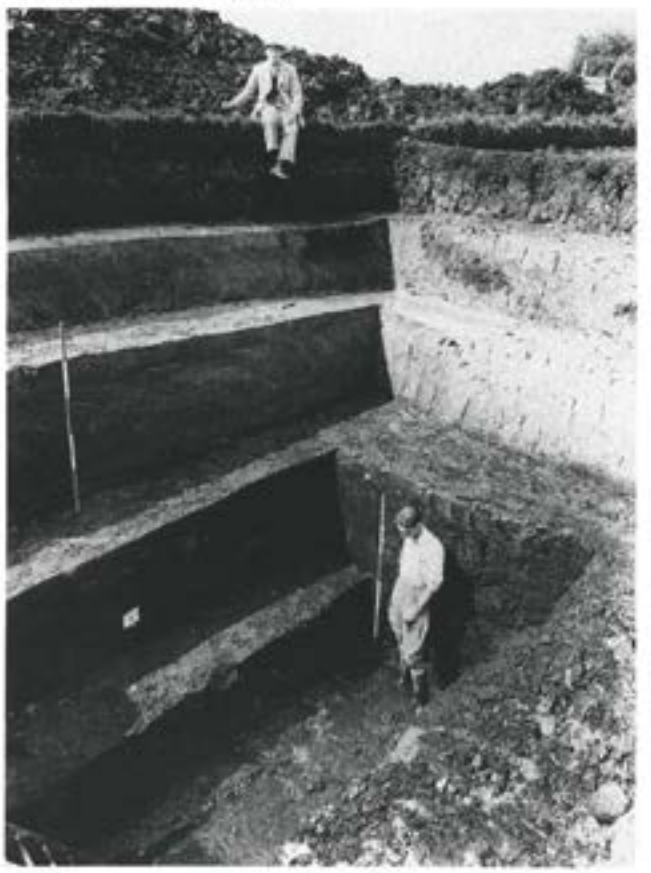


*Fig 4 Peacock's Farm, Shippea Hill, 1934; the excavations showing Grahame Clark in the cutting and Gordon Fowler sitting on the edge (from the original negative held in the Department of Archaeology, University of Cambridge)*

As a result of this work, which demonstrated beyond all doubt that large numbers of archaeological sites existed and could be recognised, a more expansive project was initiated in 1981. John Coles was asked by the Department of the Environment to chair a Fenland Project, concentrating on survey and designed to run from 1981 to 1988. Funding for the whole project was offered by the Department, and later English Heritage, in an initiative which demonstrated a major commitment to Fenland archaeology. A committee of management was set up with representatives from the three main Fenland counties, the Royal Commission on the Historical Monuments of England, the British Museum, the Department of the Environment/English Heritage, and other more regional organisations. The Project had, from its inception, a clear aim: to initiate and coordinate archaeological surveys in the Fenlands of Cambridgeshire, Lincolnshire, and Norfolk, to

implement environmental studies of Fenland deposits, to arrange for the insertion of all relevant data into the counties' Sites and Monuments Records, and to publish the survey results in a series of reports (Coles and Hall 1983). In addition, ongoing survey work in the Fenland deposits of Suffolk was to be incorporated into the overall scheme, and excavation projects in the whole Fenland were encouraged where sites could not be preserved.

The Fenland was estimated to consist of about 400,000ha (one million acres); using the rate of strike of the earlier survey in Cambridgeshire, it was hoped to complete the survey of the Fenland in the whole of Cambridgeshire, most of Norfolk, and half of Lincolnshire. Four Field Officers were appointed for seven years, one for Cambridgeshire (David Hall), one for Norfolk (Bob Silvester), and two for Lincolnshire (Tom Lane and Peter Hayes). A palaeoenvironmentalist (Anne Alderton, subsequently Martyn Waller) was also appointed, not to work on a site-specific basis but to undertake a general and overall investigation of the stratigraphy of the Fenland, amplified by a series of radiocarbon determinations carried out by Roy Switsur of the Godwin Laboratory in the University of Cambridge. The results of all of this work are summarised in this book, and the full reports appear in a series of monographs published by East Anglian Archaeology: eight volumes of primary parish-based surveys, an environmental report, and several auxiliary volumes on related subjects (Hall 1987; 1992; forthcoming; Hayes and Lane 1992; Lane 1993; Silvester 1988a; 1991; Martin in prep a; Waller forthcoming; Pryor *et al* 1985; French and Pryor 1993). The field surveys of the three counties were completed in 1988, with the Fenland covered as laid out in Table 1.

**Table 1**

| | *Fenland area* | *Area surveyed* | *% surveyed* |
|---|---|---|---|
| Cambs | 142,000ha | 142,000ha | 100 |
| Lincs | 223,000ha | 71,000ha | 32 |
| Norfolk | 55,000ha | 36,000ha | 66 |
| *Totals* | 420,000ha | 249,000ha | *c* 60 |

It will be already apparent that, through the course of time, the Fenland was dryland in some parts and wetland in others, and the pattern was in constant change, so that the occupations of the prehistoric and early historic periods reflect not only cultural attitudes and interests but also environmental and economic constraints and opportunities. We therefore expected to find a wide diversity of sites reflecting the variable achievements of ancient societies in their immediate surroundings. In terms of the Project's aims, in essence a greater understanding of human settlement, the sites and landscapes identified offered a unique chance to recover a breadth of evidence not normally encountered.

Settlements, field systems, light industry, farms, roads and canals, burials, and religious establishments were all represented in the Fenland record; many of the sites were multi-period and/or complex, and many had associated or adjacent wet deposits. These provided both environmental information and economic evidence, and in some cases a part of the human occupation was represented in the waterlogged deposits.

In the course of the survey, over 2000 sites were discovered, recognised, and recorded (Fig 5). To these may be added another 400 or so sites already known to exist through old work and aerial photographs, but many of these were more clearly identified and thereby added new information to the record. The sites ranged from the Mesolithic to the medieval period, and some combined two or more of the traditional 'periods' of archaeology. A list presented in Table 2 in chronological order by period may give an indication of the range and quantity of new discoveries.

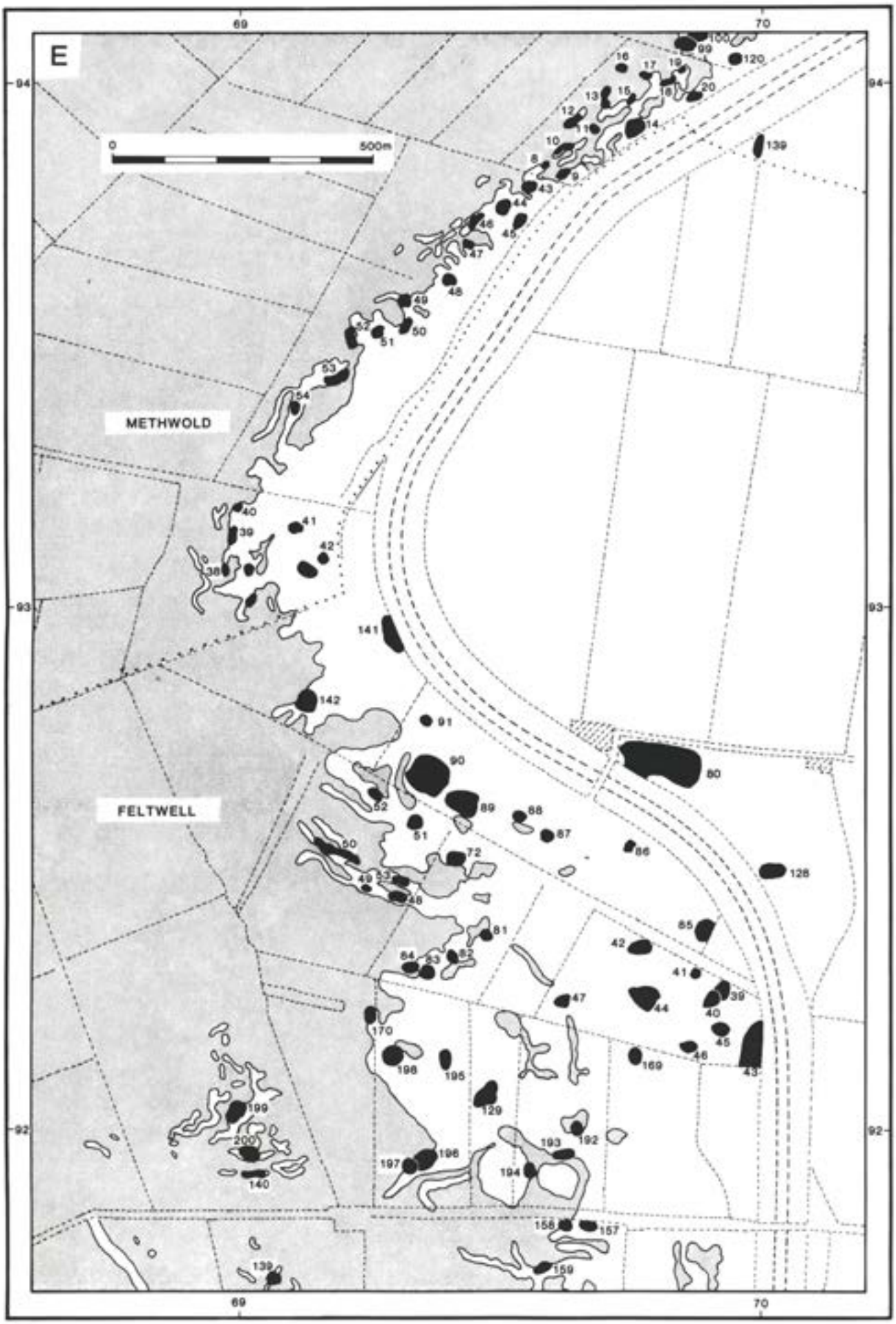
**Table 2**

| | *Sites recorded* |
|---|---|
| Prehistoric (undifferentiated) | 610 |
| Mesolithic | 45 |
| Neolithic | 65 |
| Bronze Age | 140 |
| Iron Age | 100 |
| Saltern | 210 |
| Romano-British | 820 |
| Saxon | 70 |
| Medieval | 400 |
| Multi-period | 50 |
| *Total* | 2510 |

## Fenland work

This is an appropriate place to define an archaeological 'site' in Fenland terms. In fieldwalking, the discovery of a quantity of flints or potsherds, or the recognition of low mounded areas (as low as only 50mm above the level of the field), or the identification of patches of altered soils may signify the presence of some activity in the past. Where the assemblage of flints or sherds appears to be discrete, concentrated in a definable area, then the area is designated a 'site'; a general scatter of finds over a wider area may indicate some ancient activity but is not defined on the ground or in the record as a 'site'. Mounded or embanked areas may be easily recognised, but amorphous shapes alone do not signify a site, as these could be natural features; when associated with domestic or industrial activity, or when earthworks are of a clear shape or formation, eg moated, then they are clearly identifiable as 'sites'. Altered soils and concentrations of burnt material can pose problems in definition, but again, if accompanied by recognisable

*Opposite Fig 5 Sites discovered and recorded along the Norfolk fen edge at Methwold and Feltwell; the darker area to the left is the fen, the white area to the right is the upslope dryland (scale 1:10,000; from Silvester 1991)*


E
0
500m
METHWOLD
FELTWELL
69
70
94
93
92

debris, such as potboilers or briquetage, then they can be designated 'sites'. The development of an eye for the landscape was crucial for the field survey; just as native Fenlanders speak of slopes or even hills in what to others appears a featureless and flat landscape, so too the Fenland Survey workers were able to develop a sense of the place, and unerringly approach areas high in potential, if low in elevation, while at the same time not neglecting standard survey procedures for the rest of the surrounding area.

If this is not a precise definition of an archaeological 'site', it represents the logical outcome of efforts to distinguish sites on the basis of numbers. For certain spreads of debris, such as flints or sherds, a 'site' was formally identified if an area 10×10m, searched for ten minutes, yielded at least 15 finds. This definition was found to be less than useful in some areas of the Fenland where eligible densities of fire-cracked flints, for example, could extend for several kilometres. Experience and intuition, as in many things, were the key to logical decisions and definitions.

Once identified, a site could be more closely defined on the basis of the visible spread of material and the character of the artefacts. 'Settlements', places of occupation, whether permanent or seasonal, can be identified by surviving earthworks such as medieval moats, or by dense concentrations of domestic pottery. Areas of potboilers or slag might represent settlements but are better classed as 'industry' or, more vaguely, 'activity'. Potsherds often occur in wide spreads across fields, and these may represent rubbish scatters or manuring of fields, mostly in medieval times, using the household midden; this is 'activity' rather than 'settlement'. Where a settlement or industrial site has been ploughed away, only a few sub-surface features such as the bases of pits may survive; when such remains are concentrated, perhaps a former settlement is indicated. Field systems, burial mounds, and other readily identifiable sites pose fewer problems in definition.

The fieldwalking techniques used in the survey were developed by experiment and experience. Base maps at 1:10,560 (now 1:10,000), with all of the known sites and finds marked upon them, were prepared from the counties' Sites and Monuments Records. Also marked on the maps were cropmarks and other features observed on aerial photographs from the Cambridge University collection and from the Soil Survey. These provided very useful information about ancient watercourses and medieval cultivation traces.

The ideal conditions for fieldwalking were an overcast but bright day, with the ground unfrozen but ploughed and weathered. These conditions allowed a clear view of soils and any exposed artefacts. The work began in the autumn although some fields might still have root-crops unharvested; sometimes winter wheat would obscure the surfaces later in the season. About five months per year were suitable for intensive field survey, but the worker could seize other opportunities as and when conditions allowed. Areas 'unfulfilled' due to crops or weather would require later visits when conditions improved, and so a parish under survey was completed gradually. The record sheets for the fields, one by one, carried information about the survey conditions so that near-complete coverage could be attempted over the project years. Even so, some fields could never be seen in optimum conditions, and in order to take this into consideration, maps were prepared for all areas to show the survey conditions for each field in each area. These Fieldwalking Intensity maps, with definitions as given below, provide a measure of reliability for the evidence assembled on the period maps (Fig 6).

Group 1 Fields were examined under very good conditions; few sites can have been missed, given the constraints on time and space

Group 2 Fields were of several kinds: peat and fen clay fields were walked in more widely-separated transects, as were fields under pasture; arable fields where conditions were less than ideal were also grouped here

Group 3 Fieldwalking conditions were poor, with unweathered soils or advanced crops, and where subsequent visits had not improved the record

Group 4 Areas were unvisited, most of them being under buildings or roads, or in hamlets or villages

Fields were walked in transects 30m apart and any sherds, flints, briquetage, etc were collected for later identification. Modern and post-medieval material was not collected, but items of interest were noted. The finds, areas of finds, identified 'sites', roddons, and any other features were recorded on the field maps. The choice of 30m transects was based on two principles: experience suggested that few features relevant to the survey in Cambridgeshire were less than 25m in diameter, and the 'rate of strike' in order to cover all of the ground in the period of the survey demanded a fairly rapid and extensive coverage. Sites picked up in the transects were defined by more closely-linked walking for collection of artefacts and recording of soil changes, and in some cases this meant grid or transect walking at 2–5m intervals.

Only a sample of the surface finds on some sites was collected, essentially in order to identify the chronological and cultural status of the site. Some sites had literally thousands of artefacts, for example broken pottery of Roman or medieval date, and there was no sense in burdening either the fieldworker or the local museum with such material. Such 'surface excavation' was not considered to be a valid or worthwhile exercise. There was considerable variation in the survival of material brought to the surface by plough or erosion. Roman and medieval pottery survived well under Fenland conditions of weather and cultivation. Iron Age pottery was less likely to be well preserved, and Bronze Age and Neolithic pottery had very little chance of surviving even one hard season of exposure. Saltern debris, briquetage, also degraded very rapidly. Flint posed little problem, but fire-cracked flints were more

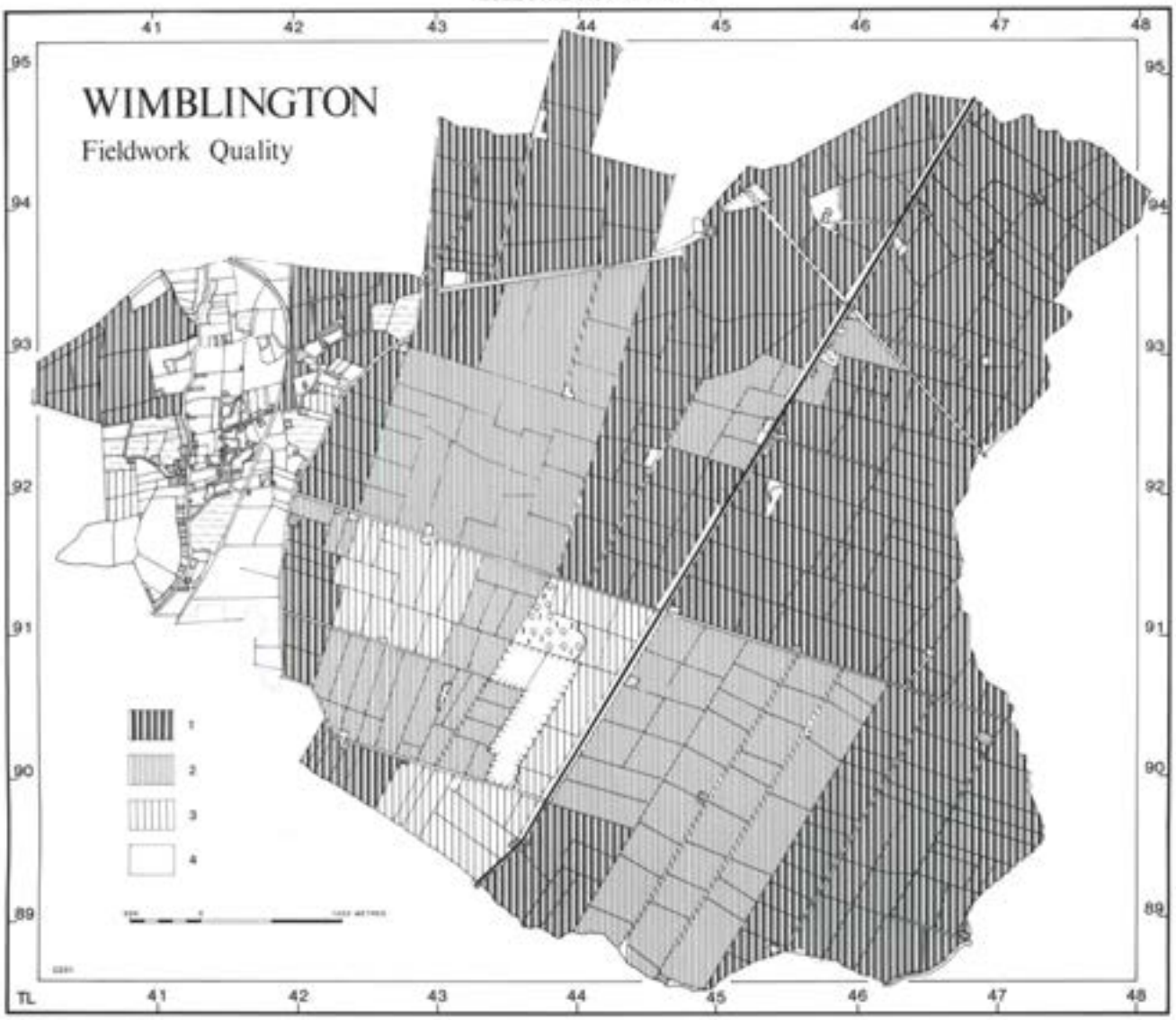



*Fig 6 The intensity of fieldwork in the parish of Wimblington; see text for description of the groups (from Hall 1992)*

susceptible to damage by frost. All of these observable facts create problems in assessing the nature and intensity of ancient settlement and activity in areas where such an extensive survey has not taken place, and here the Fenland work created a base, a datum, for other such projects.

In areas of deep peat or fen clays, where environmental conditions must have precluded early settlement, the transects walked could be at wider intervals of 100m or 200m, and such transects were completed in order to check the soil type and roddon patterns; deep drainage ditches around such fields were also checked, to discover deposits normally deeply buried. Some of the deep fens have never had any settlement at all, but such archaeological 'blanks' might contain unsuspected small islands, just poking up through the organic deposits or still buried, yet cut by a modern ditch.

All this information was noted in the field, either on copies of the maps or on well-protected aerial photographs, and the observations were then transcribed on to the relevant county maps and Sites and Monuments Records. Material collected was generally more closely assessed at the end of the fieldwalking season. It was essential to write up, at the end of each day, all notes on fields visited, conditions met, finds made, and other observations; the survey was extensive and no one, not even a Field Officer, could remember each field in detail for a more leisurely, later report. The result of the seven years of survey is a massive record, suitably buried (yet accessible) in the counties' Sites and Monuments Records, and published in some detail in the series of Fenland volumes, parish by parish. Few other areas, and none so large, have been so extensively surveyed, and the record will survive as the physical remains of the Fenland perish year by year through desiccation and erosion.

This book presents the results of the archaeological surveys and environmental investigations over the years 1981 to 1988, while also acknowledging previous discoveries and the work of the old Fenland Research Committee. It also includes some comment on current work in the Fenland, principally the excavations of various teams in the three counties and in the Suffolk fens, but also in the several research projects that have looked in detail at some of the findings of the survey in restricted geographical catchments such as the Norfolk fen edge. The lower slopes of the containing 'highlands' that border the Fenland have also been included,

and of course the evidence from the many islands, both large and small, within the wetland itself; these islands, and the fringing uplands, were the basis of much settlement by those who were keen to exploit both dryland and wetland in that coordination of activities that could assure a rich and varied existence for the farmer-hunter-fisher-gatherers. It is their story that we attempt to present here.

# 2 A basinful of complexity

The Fenland is best viewed as a wide basin bordering the North Sea into which flow a number of Midland and East Anglian rivers. For most of the last 10,000 years (the Flandrian period), sediment has been accumulating. At any one time a number of different sedimentary environments existed, freshwater influence being greatest towards the edge of the basin where peat formed, while towards the Wash marine influence caused mineral sediments of clays, silts, and sands to be deposited. During much of the Flandrian period sea levels were rising and the coastline shifted landwards, extending the area subject to mineral sedimentation and causing peat formation around the waterlogged periphery. Sometimes the coastline partly retreated and peat development became more extensive. The resulting Flandrian deposits thus consist of a series of interbedded organic and mineral layers. The accumulation of thick sequences of peat towards the edges of the Fenland and the presence of mineral sediments at the surface towards the Wash allows the Fenland to be conveniently divided into the 'peat fen' and the 'silt fen'.

The old 'pre-Flandrian' land surface, being highly variable in elevation, frequently protrudes above the Flandrian sediments to form 'islands'. These are a particular feature of the southern fens where the largest, the Isle of Ely, rises up to 36m OD. For much of the Flandrian period areas of 'upland' divided the southern Fenland into two separate complex embayments; the islands of the Cambridgeshire Fenland are the highest parts of a drowned peninsula.

Since complete drainage of the fens began in the seventeenth century, sediment accretion has been confined to the Wash and large parts of Fenland have become areas of net sediment loss. The shrinkage and disappearance (or wastage) of the peat has been considerable. The land surface in the peat fen is, in places, now below -2m OD, nearly 6m of peat having 'disappeared', while in contrast the silt fen generally lies near to 3m OD. Within both the silt and peat fens subtle variations in elevation can be discerned with the former river and creek systems standing proud above the general level.

## The Fenland Project

The programme of environmental work undertaken by the Fenland Project was designed specifically to complement the archaeological field survey: to provide the stratigraphic information that is essential for any reconstruction of former Fenland landscapes. This involved the correlation of sequences based on litho-, bio-, or chronostratigraphy. It is the chronological relationship between sequences, the distribution of sedimentary environments in time (rather than, for example, the distribution of a particular lithological unit), that are of greatest archaeological interest. In the early Fenland studies, both mineral and peat stratigraphic units were regarded as being of chronostratigraphic significance and used to date sequences.

Many radiocarbon dates were determined for the Fenland Project stratigraphic work. Only organic sediments can be directly dated; inorganic strata are approximately dated by using material from the boundaries between organic and inorganic layers. Biostratigraphic techniques, especially pollen analysis (see below), were used to provide information about the vegetation of the Fenland and upland areas surrounding the fen basin.

Investigations were mainly confined to the period *c* 4000 BC to *c* 1 BC (the middle Neolithic through to Roman times), because almost all the organic sediments deposited after *c* AD 1 have now disappeared. Most of the pre-4000 BC deposits are deeply buried and not therefore under immediate threat.

## Geological history

The Fenland region is linked to the adjacent North Sea basin, which began to assume its present shape during the Tertiary period. The drainage pattern of eastern England had a large number of eastward flowing rivers and streams (Straw 1979), which may have been responsible for the breach in the chalk occupied by the Wash. However, most authors now see the Fenland basin being excavated by ice during one of the Quaternary cold phases.

Modification of the Fenland landscape during the Quaternary period (the last two million years) occurred under both cold (glacial and periglacial) and warm climatic regimes. The Quaternary deposits of the Fenland have been variously ascribed to the last three glacial and the last two interglacial stages, though there is considerable controversy concerning the age and extent of Quaternary deposits in eastern England (Lewis *et al* 1991). The extensive gravel spreads that occur around the edge of the Fenland basin, the 'Fen' and 'Fen Margin' Gravels, probably accumulated during the last glacial period, the Devensian, *c* 20,000 BC. The deposits of the recent post-glacial period, the Flandrian, are fully described by Waller (forthcoming) and summarised below.

A number of periglacial features have survived from the late Devensian. On the western fen edge Burton (1987) has reported several large, near circular depressions (*c* 1000m in diameter and greater), most notably at Conington (Hall 1992, pl 1), Farcet, and Mepal. Others occur at Swaffham Prior and elsewhere (Hall forthcoming). They were probably formed by the melting of large ice lenses that had pressed into the soft surface. Similar thermokarst processes, under different

geological and hydrological conditions, have produced a large number of smaller depressions (10–120m) with ramparts (Sparks *et al* 1972). These form the characteristic hummock and hollow topography which is found on the sandy and chalky drifts overlying the Lower Chalk, and are of particular archaeological significance in the south-eastern Fenland. Cryoturbation structures, ice-wedge casts that have produced prominent polygonal cropmarks on the terrace gravels, occur around the edge of the Fenland basin (Williams 1964). Thin solifluction (slope wash) deposits are also widespread.

Doubts remain over the pre-Flandrian routes of several of the major Fenland rivers. The proposal that the course of the Witham was to the north of Boston is based on a few shallow boreholes. It is suggested that the Welland flowed to the south of Crowland for much of the Flandrian. While this has yet to be conclusively demonstrated, the route taken by the Welland further out towards the Wash is even more obscure. Shennan (1986b) suggests that a pronounced channel identified in the Spalding area marks the course of the Welland, though this feature could equally well represent the route of another river, presumably the Glen.

## The Flandrian deposits

During the past 10,000 years (the Flandrian period) unconsolidated sediments up to *c* 30m thick have accumulated in the Fenland. Scientific inquiry into them began with Skertchly, who published the results of a four-year study in 1877. Skertchly amassed and published a large quantity of borehole data which he used to support the contention that Fenland deposits were not as laterally persistent as some authors claimed (1877, 151).

Modern ideas on the evolution of the Fenland began with the Fenland Research Committee, particularly the work of Harry Godwin (Godwin 1978; and see chapter 1). Godwin (in Godwin and Clifford 1938) was largely responsible for the establishment of a four-part stratigraphic division of the southern Fenland. Boreholes and sections around the fen edge consistently revealed a basal or Lower Peat, which was overlain by Fen Clay (the 'Buttery Clay' of earlier authors). The Fen Clay was followed by the Upper Peat, which often formed the surface sediment (Fig 7). In some areas an overlying Upper Silt occurred (also referred to as the Marine Silt and Romano-British Silt). In the areas investigated by Godwin, 'silt' was mainly confined to the major channel systems, where it formed raised banks, penetrating considerable distances upstream into the peat fens. Fowler (1932; 1934) was the first to recognise that these banks (known as roddons) could be used to map former drainage systems (Fig 8).

In Godwin's original chronology (Godwin and Clifford 1938, 400; Godwin 1940, 284) the Lower Peat was seen as being deposited from *c* 7500 BC onwards in the channel of the Little Ouse, although peat formation was not seen as becoming widespread until much later (*c* 3500 BC). Fen Clay was shown by archaeological excavation to have been deposited between Neolithic and early Bronze Age layers at Shippea Hill and a late Neolithic age was therefore inferred (*c* 2000–1500 BC). Romano-British finds from the surface of the Upper Silts (Fowler 1933; Kenny 1933) and from roddon silts (Kenny 1933; Clark *et al* 1935) led Godwin and Clifford to conclude that these sediments were both deposited and occupied during the Romano-British period. Fowler (1949) nevertheless suggested that the Upper Silt predated Romano-British occupation.

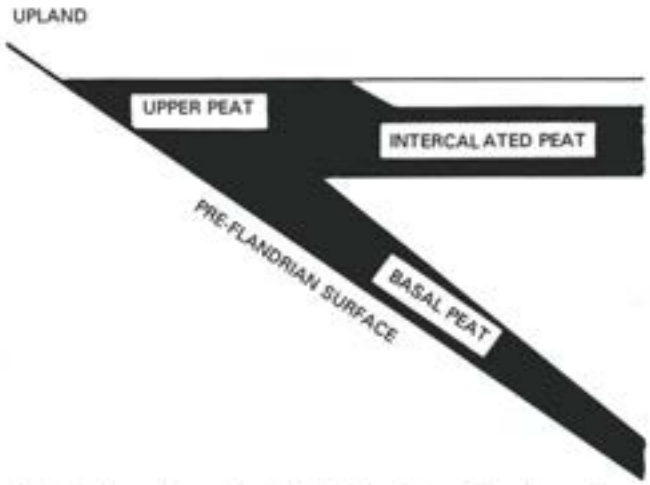



*Fig 7 Schematic section of Flandrian deposits in the southern Fenland*

Godwin also investigated the calcareous marls which occur in the southern Fenland. These sediments were deposited within extinct freshwater lakes or meres, many of which persisted through into historic times. On the basis of pollen (Godwin and Clifford 1938) and later lithostratigraphic evidence (Jennings 1950), the meres of the southern Fenland were seen as being formed at the same time as the Upper Silt.

One of the limitations of Godwin's 1930s Fenland work was the absence of an absolute dating technique. This problem was overcome in the 1950s with the development of radiocarbon dating. By the early 1960s Willis (1961) was able to propose a chronology for the southern fens based on 24 radiocarbon dates. The Fen Clay was seen as being deposited between *c* 3500 BC (in the more seaward areas) and *c* 2800 BC (at its inland limit). Waterlogging and the formation of the Lower Peat were said to precede the deposition of this material by 300–400 years. The marine regression which led to the formation of the Upper Peat was rapid. The base of this unit was dated to *c* 2750 BC inland and to *c* 2450 BC nearer the sea. Dates (*c* AD 100 and *c* 100 BC) from peat immediately underlying the Upper Silt appeared to confirm that the latter material was deposited during the Romano-British period. As a result of the continued investigations of Godwin and his co-workers this chronology underwent some modification. Churchill (in Phillips 1970, 132–46) identified two post-Upper Peat phases of inorganic sedimentation. Further radiocarbon dates indicated a marine incursion occurring sometime between *c* 1500 BC and *c* 300 BC, while freshwater

flooding during the third century AD (indicated by archaeological evidence) was held responsible for a phase of renewed sedimentation in the roddons and the deposition of alluvium around the fen edge.

Godwin's 1930s investigations were restricted to the southern Fenland; the first work in Lincolnshire was done by Jennings in the 1950s. Attempts were made to correlate the sequences encountered with the four-part southern Fenland scheme, even though the deposits were far more complex, with a maximum of four peats recorded in the Spalding region (Smith 1970). Valentine and Dalrymple (1975, 560) found a peat bed (*c* 2750 BC) in the Lower Witham, and correlated the overlying clay with the Fen Clay. The deposit may be lithologically similar to Godwin's Fen Clay, but its age lies outside the chronology suggested for the southern Fenland deposits.

The British Geological Survey, when surveying part of the eastern Fenland near King's Lynn, used new names for the traditional four-part sequence (Gallois 1979). The old term Lower Peat was retained, though Gallois indicated that deposition occurred in the King's Lynn area between 5000 and 4000 BC. The term 'Barroway Drove Beds' was introduced as a replacement for Fen Clay. Nordelph Peat replaced Upper Peat as the name for the organic unit overlying the Barroway Drove Beds. It was suggested that the Nordelph Peat generally accumulated between *c* 2500 BC and 1 BC. This term was also adopted for surface peats lying beyond the inland limits of the marine deposits. The overlying sediments, which consist of interlaminated, dull, slightly reddish-brown clays and pale-brown silts (Gallois 1979, 34), were termed the Terrington Beds. These deposits were said to have reached their maximum extent between *c* 1500 and *c* 300 BC, though the term also includes the present-day saltmarsh deposits of Terrington Marsh, from which the name was derived. Subsequent archaeological survey has shown that Roman sites are buried under some of the silts at Terrington (Silvester 1988a, 154). Gallois's terminology has been applied to the Ely

*Fig 8 Aerial photograph of natural drainage network in Warboys Fen; the vein-like channels unite to form a dendritic pattern (photo: Cambridge University Committee for Aerial Photography, copyright reserved; RC8-ED 105 (March 1982))*

(Gallois 1988) and Peterborough (Wyatt 1984) regions. As with Godwin's scheme difficulties arise in areas where the sequences do not conform to a four-part scheme.

In the Peterborough region (Wyatt 1984) an additional marine deposit was termed the Younger Barroway Drove Beds. Wyatt indicates that this material, being interdigitated within the Nordelph Peat, was deposited sometime between *c* 1500 BC and 1 BC. Hall (1987) also identified a marine layer between the Barroway Drove Beds and Terrington Beds in the Peterborough area, which he equates with this layer, though it is termed the Upper Barroway Drove Beds. A middle to late Bronze Age date (*c* 1000 BC) is postulated from the limited archaeological evidence available.

The names used by Godwin (1940), the British Geological Survey, and Hall are listed in Table 3.

The first detailed stratigraphic investigations to be undertaken in the Lincolnshire fens were made by Shennan from the late 1970s onwards. Shennan's research was concerned with establishing the sea level history of the Fenland. After analysis of radiocarbon data from the southern fens with new work from Lincolnshire and north Cambridgeshire, Shennan (1980) proposed a system of stratigraphic divisions based on periods of positive and negative sea level tendencies. Seven marine periods and six peat-forming periods were defined by Shennan in the latest version of this scheme (Shennan 1986b).

## Stratigraphic divisions and terminology (1993)

The difficulties with the previous schemes arise through the mixing of litho- and chronostratigraphy, which is contrary to the principles of stratigraphic classification. Similiar problems have arisen in the Netherlands (eg Van Loon 1981; 1985; Berendsen 1984).

The four-part sequence of the southern fens has a broad correspondence between lithology and stratigraphic position, and Godwin tried to demonstrate a correspondence in age. There appeared to be no need to restrict the usage of the terminology devised to units of lithology, stratigraphic position, or time. Consequently, Fenland workers came to associate particular types of sediment with time of deposition. However, lithology does not reflect the time of deposition but the sedimentary environment. At any one time within the Fenland basin a series of depositional environments, arranged in a spatial zonation, will have existed. As a result, lithological characteristics will change both laterally and vertically. It is difficult, therefore, on a fen-wide scale to characterise any particular deposit on the basis of lithology. All lithologically similar material was not deposited at the same time, and, equally importantly, lithological differences cannot be taken to indicate variation in the time of deposition.

For example, it is now apparent that the Fen Clay sediments of the southern Fenland were not, contrary to the early views of Godwin, deposited synchronously. Also the deposits underlying and overlying the peat layer along the Wisbech bypass (which traditionally would probably have been termed Fen Clay and Upper Silt) cannot be separated on lithological grounds. In the 7km of recorded section considerable variations occur in both mineral units, but one particular lithology cannot be said to predominate in either (Waller forthcoming, ch 11).

The difficulties created by this mixing of litho- and chronostratigraphy would probably not be too great if subsequent studies had confirmed that the four-part scheme could be applied to the Fenland region as a whole. However, as the recent work around Peterborough has demonstrated, this is not the case. The investigations described by Waller (forthcoming) suggest that the Fenland sequences are both litho- and chronostratigraphically far more complex than anyone had previously supposed (except perhaps Skertchly).

These problems are of relevance to Fenland archaeology. For example, Hall (1987) mapped a series of stratigraphic units in the Peterborough area, using lithology. On the basis of the lithology (and stratigraphic position), one of these sediment bodies (a clay unit) was correlated with one of the existing Fenland stratigraphic units, the Fen Clay/Barroway Drove Beds, elsewhere in the fens assigned a Neolithic date. This date was therefore inferred for the Peterborough deposits.

Chronostratigraphic investigations of the deposits mapped by Hall have been shown by Waller (forthcoming) to be, in this region, deposited during the Bronze Age. Hall's synthesis shows the landscape during the Neolithic (based on the distribution of these deposits) and the Neolithic sites for each of the parishes of the area. The conclusions drawn from these maps concerning the relationship between the landscape and the archaeology need to be reevaluated; this is done in this volume.

Those involved with the mapping of the Flandrian sediments of the Fenland need to devise a new system of lithostratigraphic classification. The recent Fenland environmental programme was not concerned with the detailed mapping of the sediments on the ground, but rather with first recording then chrono-correlating stratigraphic sequences. All that is needed to achieve

**Table 3 Names of Flandrian deposits**

| *Godwin 1940* | *Wyatt 1984* | *Hall 1987* | *Hall 1992* |
|---|---|---|---|
| lower peat | Lower Peat | | |
| fen clay | Barroway Drove Beds | Barroway Drove Beds | marine clay |
| upper peat | Nordelph Peat | | |
| | younger Barroway Drove Beds | Upper Barroway Drove Beds | silty clay |
| upper silt | Terrington Beds | Terrington Beds | silt |

the former is a series of terms to describe the position of a particular body of sediment in a vertical succession, a terminology which does not imply correspondence (other than in stratigraphic position) with sediment bodies elsewhere. The terms used were:

basal peat a peat at the base of Flandrian which is overlain by clastic (mineral) sediment
intercalated peat a peat which lies between two Flandrian mineral deposits
upper peat a surface peat which lies above Flandrian mineral sediment

Given the variable nature of the mineral layers, the peat horizons are the important stratigraphic markers when vertically dividing up the Fenland sequences. The mineral sediments are alluded to by reference to the locally predominant lithology.

## Methods of investigation used by the Fenland Project

During the work of the Fenland Project pre-existing lithostratigraphic information from boreholes was collected – in all over 3000 records. Together with new data from the investigations of the Project, this material provided the essential lithostratigraphic database upon which the palaeogeographic reconstructions were based (Waller forthcoming, ch 5, and below).

Pollen analysis was undertaken from nearly 30 sites. This work constitutes the first extensive programme since that of Godwin in the 1930s (Fig 9). Godwin used pollen data to reconstruct forest history and to correlate deposits. Subsequently there have been advances in both dating methods and in the technique of pollen analysis (particularly in the identification of herb pollen). The Project used pollen to establish the continuity of deposition across sediment boundaries, to reconstruct the vegetation of the peat-forming communities, and to examine the anthropogenic influence on the vegetation of the uplands surrounding the Fenland basin. A major limitation of the latter is the preponderance of local pollen and the difficulties in separating regional from local pollen, which are common to all investigations from eutrophic peats.

There had been few macrofossil studies from the inorganic sediments of the fen basin prior to the investigations of the Project. Alderton (in Waller 1993) examined the diatom content of a range of inorganic units spread widely across the Fenland. The aim of this work was to establish environments of deposition and the data were therefore arranged into groups based on salinity tolerance.

A large programme of radiocarbon dating was undertaken in conjunction with the Godwin Laboratory, Cambridge University (Switsur in Waller forthcoming). The new data and results from previous Fenland studies were calibrated from radiocarbon age to the Christian calendar (Switsur in Waller forthcoming; Pearson *et al* 1986; Aitchison *et al* 1989).

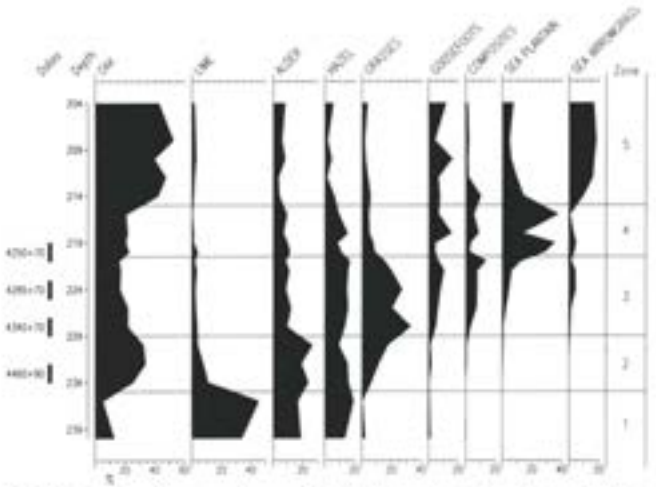


*Fig 9 Pollen diagram from Lade Bank, showing the variation in the amounts of pollen of different species as the fen climate changes from dryland to saltmarsh*

## Depositional environments

The intercalated Flandrian clays, silts, sands, and organic sediments of the Fenland indicate that low energy sedimentary conditions existed during the period of their accumulation.

Shennan (1986a; b) considered the conditions under which the horizontal and vertical movements of the coastline, and the range of sedimentary environments, could have formed. Three circumstances that might explain the deposits in the Fenland were advanced:

1 a static barrier across the Wash, first suggested by Swinnerton (1931)
2 a protective mobile line of barrier islands
3 open coast, free from barriers, similar to the present coastline but without the artificial sea defences (Godwin 1940; 1978; Shennan 1980; 1981; 1986a)

After evaluating the data Shennan (in Waller forthcoming, ch 4, 5) concluded that the third hypothesis was the most likely. No tidal barrier type sediments have been adequately recorded, and no large barriers exist today in the Wash. Even those at Gibraltar Point and Heacham only affect local sedimentation. Barrier islands develop in microtidal regions and are not found in macrotidal regions like the Wash which has a mean tidal range of 4.2m and a spring tidal range of 6.3m. The range of sediments documented can be adequately explained by an open coast model as described below.

Various types of mineral sedimentary environments would exist if the open coastal model were correct. While these zones would occur in a fixed order, any transect across such a region would show that the spatial relationships are related to a dendritic pattern, rather than in linear zones parallel to an ancient coastline. The expected zones (following Shennan in Waller forthcoming) are:

Zone 1 Intertidal sand flat; sediments dominated by fine to medium sand (50–90%)

Zone 2 Pioneering mudflat, with the surface sediment dominated by silt

Zone 3 A zone ranging above mean high water spring tide where at higher altitudes fine sand will be absent, with the silt fraction dominant

Zone 4 Creek and creek levees, varying in size from small channels (1–2m wide forming a dense network in the highest saltmarsh) to the large tidal channels (10–500m wide) of the major Fenland rivers

Zone 5 A zone in which the extensive silty/clay sediments (the 'Fen Clay') were deposited; in the literature such sediments are frequently termed 'lagoonal' but the use of the term in these circumstances can be misleading. This environment is poorly drained with standing water occurring between the levees of the dendritic creek system. Fully marine diatoms confirm the input of saline water during high spring tides, purely freshwater forms being absent.

Zone 6 Coastal reedswamp, with mainly organic sediment accumulation, and a silty/clay fraction at the transition

The change from one sediment to another in a vertical sequence, without a hiatus between them, records the shift between sedimentary environments which occur adjacent to each other at any one time. Lithological differences between the Fenland marine beds represent changes in the relative extent of sedimentary environments through time.

## Biotic environments

Like the mineral deposits, plant communities of coastal wetlands exhibit a spatial zonation, in response to a series of environmental gradients. This zonation can be seen as a horizontal manifestation of the vegetation changes that will occur through time and become recorded in a stratigraphic column at any one place. The environments identified include saltmarsh and mires of various types.

### Saltmarsh

Different plants and plant communities tend to occupy each different zone of saltmarsh (Chapman 1976; Ranwell 1972). Adam (1981) noted that there may be considerable variation between sites; communities dominated by coastal reedswamp will commonly occur at the transition to freshwater.

### Mire

The term mire is generally applied to all peat-forming communities. Nutrient status is a major factor in determining the nature of mire vegetation. Mires which are nutrient-rich are termed eutrophic, nutrient-poor mires oligotrophic, and mires which are of intermediate status mesotrophic. Minerotrophic mires, obtaining nutrients from drainage water, are generally called fens (Wheeler 1980a), and ombrotrophic mires, dependent on rainfall, are often called (simply) bogs. It is likely that modern mires which most closely resemble those found in the Fenland during the Flandrian are a category known as floodplain mires (Wheeler 1984), such as survive in the Norfolk Broads.

The concept of a succession of sediments accumulating in areas of open water and resulting in 'firm land' has dominated ideas on the origin and development of mire vegetation. Tansley (1939) identified the following sequential stages: open water, swamp, fen, and fen 'carr' (a term used to describe scrub vegetation dominated by alder, willow, and buckthorn) leading to the development of a climax vegetation consisting of either mixed deciduous forest or, in oceanic regions, bog.

However, stratigraphic investigations by Walker (1970) have shown that the successional sequence is likely to be variable, and the succession seems to be strongly influenced by the first dominant species to reach the site. In coastal and estuarine areas the only consistent transition was from saltmarsh or saltwater lagoon to reedswamp. There appears to be little evidence for replacement of fen carr by a mixed deciduous forest with oak. The examples frequently found are those where the hydrology has been considerably modified by peat cutting and drainage. Alder carr, which appears to be the natural development of a range of herbaceous fen communities, is itself a stable community (Wheeler 1980b).

In the Fenland it is apparent from the stratigraphy that mire vegetation cannot have developed exclusively from bodies of open water. A basal peat generally overlies the pre-Flandrian surface. In such circumstances it is clear that rising waterlevels initiated mire formation over former dry surfaces, and they were the driving force behind vegetational change. There can be little doubt that oak was present at many sites in the initial fen woodland stage. With mire vegetation developing from dryland woodland, such communities reflect the ability of established trees to withstand a certain level of waterlogging, which is very different from oak colonising fen and forming a stable final stage in a succession.

## Post-depositional changes and the origin of roddons

Three post-depositional processes have occurred: sediment compaction, sediment erosion, and the decomposition (or humification) of organic material. The term compaction is used here to describe the reduction in volume that arises from loss of pore fluids, though compression and consolidation are equally valid. These processes are crucial in an understanding of Fenland deposits.

### Compaction and erosion

Sediment thickness and altitude are fundamental to many aspects of palaeoenvironmental reconstruction in the fens. Unfortunately it cannot be assumed that they remained constant through time. A deposit may have contracted in volume through compaction or have had

its altitude significantly changed by the compaction of underlying sediments. Also post-depositional changes in the altitude of Flandrian Fenland sediments may have been produced by crustal movements.

Compaction will vary with grain size. In sediments with a high sand fraction compaction will be low, while in fine-grained material compaction occurs more readily. Initial compaction can occur extremely rapidly in peats (Bloom 1964; Tooley 1978) and there may be secondary compaction. Peat layers can be reduced to 10% of their original thickness (Bennema *et al* 1954), clayey muds to 11–25%, calcite muds to 50%, and sands to 66–75% (Greensmith and Tucker 1986).

The maximum variation in altitude which has been recorded from any one layer, in the present Fenland study, was *c* 2m from a thin (*c* 200mm) intercalated peat which occurs consistently 3–5m below the present surface in the west-central fens (Waller forthcoming, ch 10). It is assumed that the layer was originally flat.

In a dike section recorded near Murrow another intercalated peat layer is thickest (230mm) where it overlies the more compressible clays and thinnest (40mm) where it overlies the less compressible sands. The peat attains its highest altitude (with the lower boundary at 0.45m OD) over sand and its lowest over clay, where the overlying material includes sand (with the lower boundary reaching a minimum -0.53m OD). So, paradoxically, the sites where the peat layer has probably changed altitude the least is where it is most compressed. This may require some thought on the part of the reader.

### The effects of drainage

The post-depositional changes which have occurred since the commencement of major drainage works in the seventeenth century have clearly had a profound influence on the modern Fenland landscape. The cycle of events initiated by drainage is well documented. The loss of water causes an initial contraction in sediment volume. Organic sediments will then begin to decompose through biochemical oxidation and are ultimately either washed or blown away (if outcropping at the surface). As the land surface is lowered through these processes drainage deteriorates, thus necessitating further action to lower the watertable. The effects and responses are described in chapter 1, but wastage has clear implications for palaeoenvironmental studies. As the constituents of a particular peat layer decompose the ability to characterise the material on the basis of its microfossil content is lost.

The most widely quoted source of information on the lowering of the ground surface is the Holme Fen post (Hutchinson 1980). It provides a unique record of land subsidence resulting from the drainage of the fens. That the initial rates of reduction were high (presumably through compaction) can certainly be regarded as typical for the deep peatland areas. However, the Holme Fen area is unusual in many respects (Waller forthcoming), and the post cannot serve as a general model of Fenland subsidence.

### The origin of roddons

Roddons are banks of material (sand or silt), found raised above the general level of the fens, which represent former watercourses. The term has appeared in the literature in several forms (including rodham and roddam); roddon has been preferred in all the Fenland Project publications (Silvester and Hall 1985). Roddons are important since, by plotting their courses either on the ground or from aerial photographs, it is possible to reconstruct former drainage systems; also, because they offer the firmest and most elevated locations, they have frequently been exploited for settlement. They are not unique to the fens; similar examples of 'inverted relief' have been documented in other coastal areas, both in Britain (eg Romney Marsh, Green 1968) and on the continent (eg the Brittany coast, van de Plassche *et al* 1987).

The first explanation of the origin of roddons was offered by Fowler (1932; 1934). He suggested that material deposited in the form of a concave mass within peat would subside into a convex form with peat shrinkage. However, after stratigraphic investigations of a roddon near March, Godwin (1938) reported both that the underlying peat was of uniform thickness and that the laminated roddon sediments showed no signs of disturbance. Hence there was no indication of the subsidence Fowler's theory required. Godwin showed that roddons were the natural levees of tidal rivers, similar to modern examples in the north-west German marshes, and were deposited substantially as they are now found (Fig 10).

The elevation of roddons above the neighbouring fen level has been accentuated considerably by peat wastage. In the silt fen differential compaction between fine and coarse mineral sediments explains the existence of substantial roddons occurring in locations where organic sediments are absent, and surface peat loss can have played no part in 'exposing' roddons.

## Palaeogeography and Fenland environments

The extensive palaeoenvironmental studies outlined by Waller (forthcoming) allow the construction of a series of maps showing changes in the spatial distribution of Fenland environments (both marine and freshwater sedimentation) through time. While archaeological survey mapped the surface distribution of Fenland sediments in great detail, the temporal relationships between sedimentary units, indeed the degree to which individual units are time-transgressive, could not be satisfactorily established through field survey. The production of palaeogeographic maps represents an attempt to overcome these problems.

Lack of dating precision makes it impossible to separate short-term events. The maps were divided into periods on the basis of the apparent consistency of the data. Extrapolation has been used where information is inadequate, and over short distances some sedimentary boundaries have been considered isochronous.

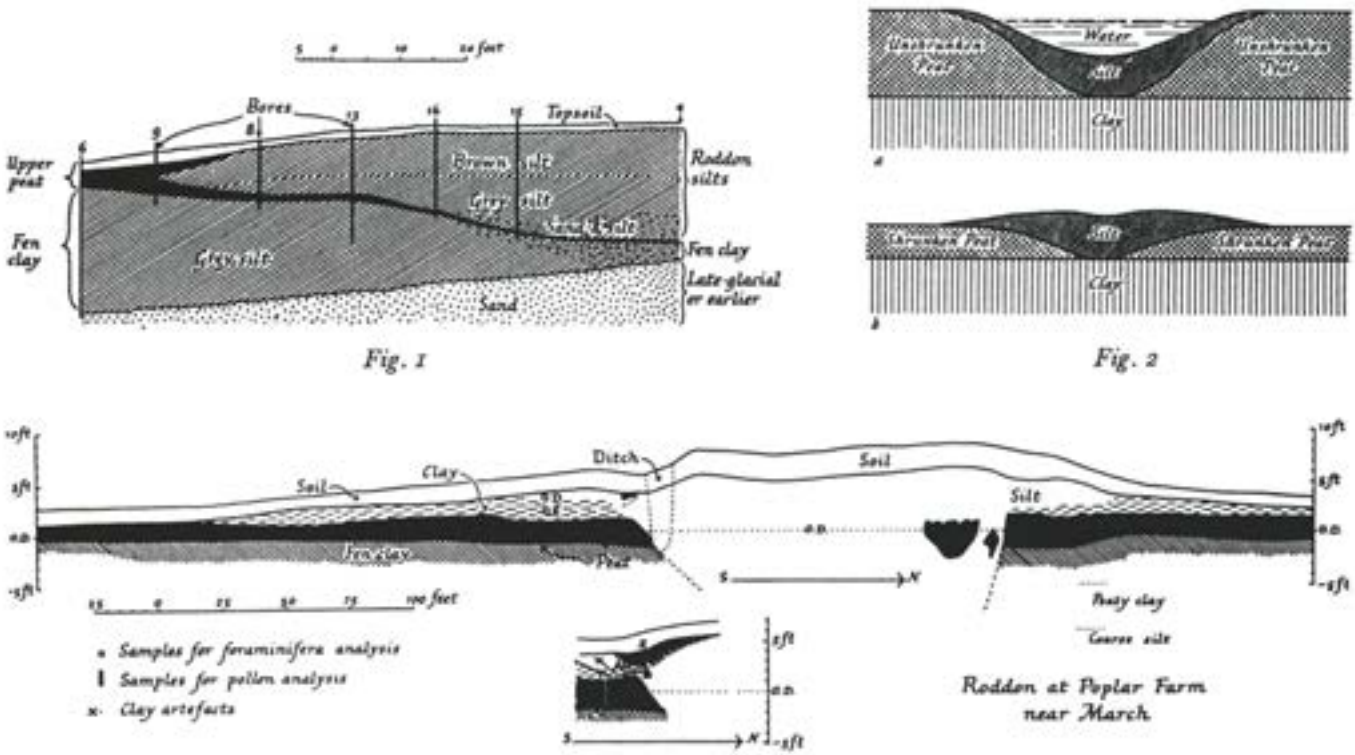



Fig. 1 Fig. 2

*Fig 10 Section of a roddon (bottom) and (top) Fowler's incorrect proposed mechanism for roddon formation (from Godwin 1938)*

The areas subject to marine and freshwater sedimentation are shown on most maps, but no attempt has been made to distinguish different sub-environments. An area shown as freshwater may include not only different peat-forming plant communities but also contemporary environments in which marl and riverine alluvium were accumulating.

The reconstructions (Waller forthcoming) represent the Fenland landscape at the eleven periods set out in Table 4. Some of them have been used below to demonstrate the spread of various archaeological horizons by superimposing the archaeological field data. The plan of the pre-Flandrian land surface is shown in Figure 11.

**Table 4**

1 The pre-Flandrian land surface
2 Fenland *c* 5000 BC
3 Limits of marine sedimentation *c* 4600 BC
4 Limits of marine sedimentation *c* 3900 BC
5 Fenland *c* 2700 BC
6 Fenland *c* 2250 BC
7 Fenland *c* 1700 BC
8 Fenland *c* 1450 BC
9 Fenland *c* 750 BC
10 Fenland *c* 200 AD
11 Fenland post *c* 200 AD

## Vegetational history

Waller (forthcoming) synthesised pollen analytical information into sections concerned with patterns of change in the wetland communities, the status of the major arboreal types, acidification, and the anthropogenic influence.

It was usually possible to describe the pollen assemblages at the sites investigated in terms of the communities listed below; some of these fen environments are illustrated in Figure 12. From the detailed studies of a variety of sites the vegetational changes in the Fenland basin were determined.

1 Marine or brackish open water (unvegetated); includes both subtidal environments and unvegetated parts of the intertidal zone; inorganic sediments
2 Saltmarsh; grass pollen and pollen of coastal herbs; transitional inorganic and organic sediments
3 Reedswamp; grass pollen with *Phragmites* (reed) macrofossils; transitional inorganic/organic or organic sediments
4 Sedge fen; herbaceous communities rooted in the substratum and standing in perennial water; includes both tussock-forming and non-tussock-forming sedges; sedge pollen and macrofossils; organic sediments
5 Fen carr; high alder and/or willow pollen values; organic sediments with wood remains
6 Fen woodland; high alder and oak pollen values; organic sediments with wood remains
7 Dryland; woodland (high pollen values for lime, oak, and hazel) or cleared ground (high pollen values for cereal type and other herbs); buried soil profiles
8 Poor fen; high pollen values for birch (occasionally pine); organic sediments with wood remains.
9 Bog; *Sphagnum* spores, heather pollen; organic sediments
10 Open freshwater; pollen and macrofossils of aquatic plants; shell marl/limnic sediments

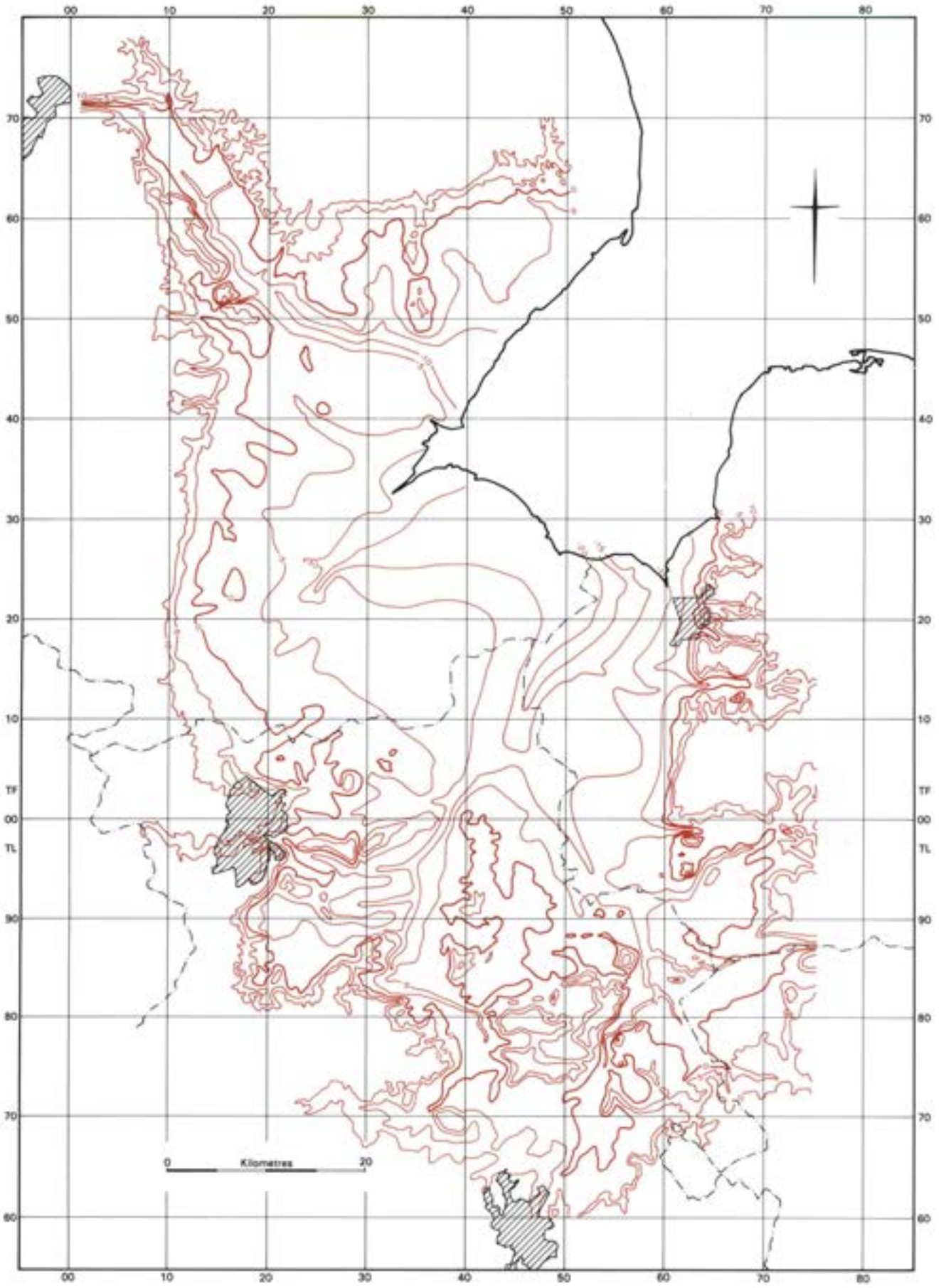



*Fig 11 The pre-Flandrian land surface of the Fenland, reconstructed using borehole data (from Waller forthcoming)*

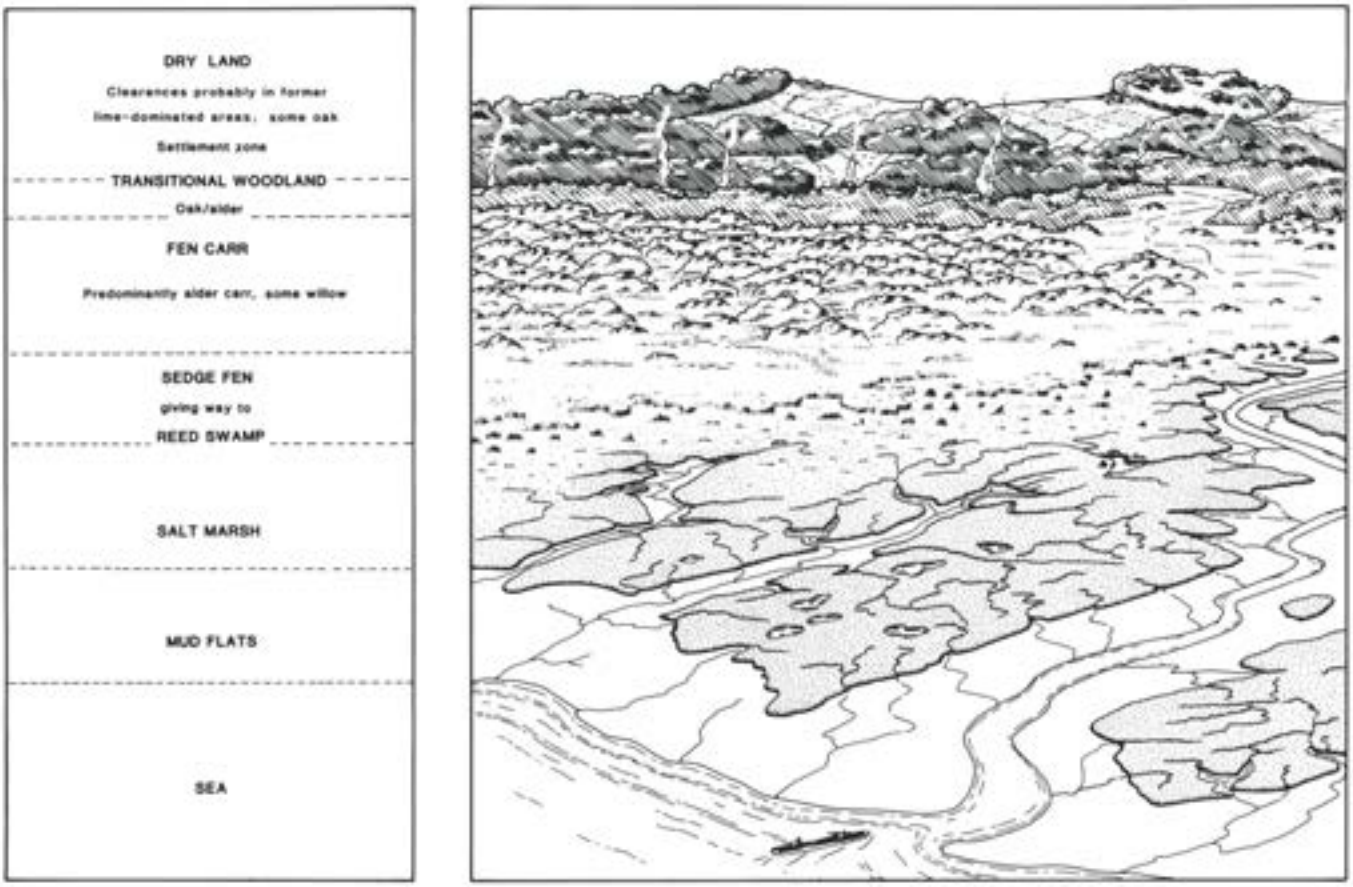



*Fig 12 Reconstructed fen edge environments showing various zones of vegetation lying between the fen edge and saltmarsh mudflats (from Silvester 1991)*

It was not always easy to assign a pollen assemblage to one of these environments. Difficulties arise because some of the pollen will be derived from neighbouring communities and further afield, and because of the presence of transitional zones.

The sites investigated were grouped by their stratigraphic context (into basal peat profiles, intercalated peats, upper peats, and peats outside the limits of marine sedimentation) and the changes in vegetation tabulated in order to reveal successional trends. For example, the twelve basal profiles examined show considerable similarities. Typically high lime values were found in the underlying buried soils. Lime is more sensitive to high waterlevels than the other tree types present, and values for this type consistently fall at the transitions between buried soils and the overlying peat. At most sites fen woodland/carr with alder then develops. The subsequent occurrence of reedswamp indicated by a rise in grass pollen is often confirmed by a change from wood to reed peat. Taxa indicative of saltmarsh and brackish environments (eg Sea Plantain, Goosefoots, Sea Arrowgrass) usually increase immediately preceding the deposition of inorganic sediment. These vegetational changes generally occur over a few hundred years and are indicative of successively higher waterlevels. The stages occur at different times at different locations and, rather than indicating that - individual communities were particularly extensive at certain times, the pattern reflects the landward shift of wetland conditions, and the movement of vegetation communities across the sites.

## Acidification

The occurrence of acidophilous plants, characteristic of poor fen or ombrotrophic bog, in the Flandrian deposits of Fenland has been known since some of the earliest palaeobotanical studies (Godwin *et al* 1935; Godwin and Clifford 1938). Such deposits seemed restricted to those basins relatively isolated from eutropic groundwater and, Godwin believed, would have developed during periods of regression or stability from fen woodland (Godwin and Clifford 1938, 388).

Latterly it has been suggested that such vegetation must have been more widespread and its former extent underestimated because of peat humification and wastage (Hall and Switsur 1981; Hall 1987). Recent pH measurements from Fenland peats were offered as evidence. This was suggested to explain the restricted extent of the later marine episodes (Godwin referred to the 'Fen Clay' abutting the margin of the raised bog at Holme; Godwin and Vishnu-Mittre 1975) and documentary evidence which indicates that the 'peat fen' may have been 1.5 to 2m higher than the 'silt fen' in the sixteenth and seventeenth centuries.

The recent work adds to the number of sites from which acidophilous vegetation has been recorded, with such communites reported from Friskney and Wiggenhall

(Waller forthcoming). However, sites with acidic bogs are exceptional. There is no strong evidence that for the fen basin as a whole acidophilous vegetation was ever widespread, linking these sites. However acidophilous vegetation appears to develop from the early succession stages, reedswamp and sedge fen, and not from eutrophic fen carr. Isolation from inundation by base-rich water appears to be the critical factor. Bog development is not therefore responsible for the restricted extent of the later marine incursions.

## The anthropogenic influence

The evidence for human interference with the vegetation of the upland/dryland areas surrounding the Fenland basin is summarised below. The limitations of the Fenland pollen record must be considered when assessing the available data, particularly the likely local source of much of the pollen and the difficulties in clearly distinguishing an environment of origin for many of the herbaceous types. Ideally, long pollen records are required from basins which have remained relatively isolated from watertable fluctuations. Discussion of the anthropogenic influence is largely limited to the southern fen edge where there are a number of such pollen records.

Any major human impact on the vegetation during the Mesolithic has yet to be satisfactorily demonstrated in the Fenland. There is certainly no suggestion of Mesolithic populations having influenced the vegetational development of the region. Prior to the elm decline the longer sequences are dominated by arboreal pollen of oak, elm, and lime, the latter taxa being particularly associated with undisturbed woodland. Recently, evidence has been produced for a forest opening (*c* 8250 BP) in the vicinity of the Mesolithic occupation area at Peacock's Farm (Smith *et al* 1989). Local interference at and immediately around such sites is to be expected. However, the scale, intensity, and purpose of this impact all remain unclear and contentious (see, for example, Bennett 1983). The high herbaceous frequencies recorded in two of the shorter Fenland pollen diagrams from this period (Welney Washes and Adventurers' Land) can be attributed to the presence of nearby wetland communities.

Evidence for human impact on the vegetation during the Neolithic has been obtained from the River Ouse near Haddenham. Here, in the early Neolithic (*c* 4300 BC) there is strong evidence for a clearance phase which was accompanied by at least some arable farming. There is a decline in arboreal pollen, particularly lime, and grass grains with large annulus diameters (cereals) occur. This is in agreement with the archaeological evidence for the Neolithic occupation of the gravels of this area and it seems likely that the neighbouring terraces were cleared. There is contrast with the Holme Fen and Trundle Mere (Godwin and Vishnu-Mittre 1975) and the Shippea Hill (Clark and Godwin 1962; Smith *et al* 1989) sites, where evidence for forest clearance during the early Neolithic is limited. For future work, there is ample scope for investigations to determine whether gravel terraces were particularly favoured for agriculture at this time. Comparable diagrams to those from the Ouse and Little Ouse could, for example, be obtained on the western fen edge from the pre-Flandrian channels of the Nene and probably the Welland.

There is a comparative wealth of palynological data from the southern fens which covers the later Neolithic/early Bronze Age. The types of taxa that might be expected to accompany forest clearance are scarce or absent. In the south-eastern fens this is in apparent contrast to archaeological evidence; for example a large number of later Neolithic/early Bronze Age sites have been identified in the recent survey of Hockwold and Feltwell parishes (Silvester 1991, 82–7). Whether this is a reflection of the activities undertaken at the archaeological sites, such as the exploitation of marine resources, or of the type of deposits available for palynological investigation is unclear. The latter is, however, almost certainly significant. Small pollen source areas can account for the absence of anthropogenic indicators in the buried soil profiles. Peat formation itself indicates that conditions would have been locally unfavourable for agriculture. The re-establishment of woodland at the Ouse near Haddenham is probably linked to the abandonment of the lower parts of the terrace under the influence of a rising ground watertable. If agriculture continued in areas more distant from the site this may well have gone undetected in the pollen record.

Evidence for forest clearance from the earlier Bronze Age has been obtained from West Row in Suffolk (*c* 2000 BC; Martin and Murphy 1988). However, a major (if not the major) phase of forest interference in this part of the Fenland basin appears to have occurred a few hundred years later. This is the 'decline' in lime (*Tilia*), which is evident in all the new pollen diagrams from the south-eastern fens (Wicken, Redmere, and Welney) and in the early diagrams of Godwin (1940). At the new sites it is accompanied by increases in herbaceous plants and cereals. The most likely explanation is a phase of forest clearance, dating from *c* 1500 BC to *c* 1300 BC. This interference is likely to have affected large areas. The only other radiocarbon dating evidence available for lime decline in the Fenland, from Holme Fen (*c* 1350 BC), is in close agreement with the dates from the sites in the south-eastern fens. However, the 'event' at Holme is somewhat curious as, despite the apparent pre-clearance importance of *Tilia*, its disappearance is not accompanied by marked increases in herbaceous pollen. The major episode of forest clearance quite clearly occurs later, probably during the late Bronze Age as Godwin and Vishnu-Mittre (1975) suggest (though there is no radiocarbon dating evidence for this). When lime disappeared from other fen edge areas is less clear. In the southern embayments fine resolution investigations from sites in very close proximity to the fen edge could usefully be undertaken to clarify the nature of this event.

Owing to peat wastage there is a shortage of suitable sites covering the late Bronze Age onwards. Those which have been examined are characterised by major fluctuations in the local environment. These are often linked to the preservation of the site (eg the deposition of a protective layer of marl or alluvium). In many of the diagrams from this period (Haddenham, Willingham Mere, Redmere) a strong anthropogenic influence on the vegetation of the source area can be detected. However, many of the fluctuations in dryland types are linked to the local environmental changes. For example, the increase in grass grains with large annulus diameters at Redmere is coincident with marl formation and is almost certainly a product of a more open local environment: either greater pollen influx with less filtration, or a proportional decline in local types. A further problem with such sites is that it is difficult to make any assessment as to when the vegetational changes may have occurred. With fluctuations in the local environment, and the possibility of peat cutting, the sediment accumulation rate derived from the deeper part of the profile cannot be extrapolated forwards, and the near surface sediment is unsuitable for radiocarbon dating. Given the problems of interpreting and dating the post-lime-decline pollen record it is premature to discuss trends, even within the southern fens.

There are, however, one or two interesting changes against which any new data could be compared. For example, the pronounced increase in grass grains with large annulus diameters in the top Welney Washes peat, which does not appear attributable to changes in the local environment, is probably indicative of increased cultivation. While not directly dated, the available radiocarbon evidence (from above and below this horizon) suggests that this occurred during the late Saxon/early Norman period.

Even after the investigations of the Fenland Project we remain in some ignorance concerning the influence of man on the vegetational history of the uplands surrounding the Fenland. The current database is simply insufficient, over such a large and diverse region, to discern fen-wide trends, either in the clearance of the forests which covered the uplands at the end of the Mesolithic or in the subsequent land use history of these areas. Progress has been made in certain southern Fenland districts and with certain events (the lime decline), but further studies are urgently required, given the continued wastage of organic deposits. There is very little direct information about the human exploitation of wetland environments. Environmental studies from archaeological sites are probably of greater value in this respect (Evans and Serjeantson 1988).

However, larger-scale events may be reflected in the record. For example, forest clearance will have had an influence on the hydrology and supply of sediment into the basin. The hydrological affects of clearance are well documented (Moore 1985; 1988): transpiration and evaporation decline and surface run off and stream flow increase. In the Fenland basin the result is likely to have been the promotion of peat formation, retrogressive vegetational change (the development of communities tolerant of higher waterlevels), and eutropication. As previously noted, forest clearance (the lime decline) may be responsible for the rise in the ground watertable evident in the south-eastern fens between *c* 1500 BC and *c* 1300 BC. The increase in surface run off and stream flow and the loss of soil stability, consequent upon clearance, might also be expected to have promoted erosion.

It should be stressed here that these statements about coastal environments, mire formation, woodland clearance, and the like can only suggest the powerful natural forces that affected the ability of the early human groups to penetrate, settle, and exploit the Fenland. That we can rarely define the effects upon particular groups of people is due not so much to the imprecision of the technology but more to the nature of the deposits investigated and the deleterious action of desiccation and erosion on the once-preserved record. It can only be a combination of broad fen landscape studies (Waller forthcoming) and site-specific inspection of the factors at work that will allow us to make statements about individual human groups in the following chapters.

# 3 Establishing the wild tradition

In this chapter we will try to set out some of the evidence for the first humans to penetrate and occupy the Fenland basin, hunter-gatherers who unwittingly established an independent, isolated, and untamed way of life that survived in part until recently – the original 'fen slodgers' (see chapter 10).

The evidence so far assembled is sparse and restricted, and so we begin with some comment on the identification of sites that have survived only as lithic scatters.

## Lithic scatters

Throughout much of the south-eastern Fenland there are outcrops of light sandy soil where fieldwork has identified spreads of material of the Mesolithic and later prehistoric periods. The evidence is as relevant to the Neolithic and Bronze Age as to the Mesolithic, and is based on the recognition and identification of sites. A specific example is focused in Isleham in eastern Cambridgeshire, where the presence of light soils and the modest streams of the Snail and Lark created a haven for early communities. The Isleham complex forms a hitherto unrecognised prehistoric landscape, which is of national significance; it includes the areas around Mildenhall and Lakenheath (Suffolk) and Hockwold (Norfolk), and extends north-east to Littleport (Cambs), covering an area of *c* 400 sq km. The whole area has been walked by the Fenland Survey.

Fieldwork in sandy areas has to be adjusted not only to fit in with the agricultural regime (as is usual in all rural areas) but also to react to the effects of weathering. The soil of the Isleham complex, being composed of peat and fine sand, is the most prone in the whole of the Fenland to serious wind-blow. Farmers do not like to see their fields blowing away, so for this reason little ploughing takes place in autumn, but the ground is left as stubble-with-weeds which helps to stabilise the soil during the winter months. In the spring, cultivation is rapid – plough one day, plant the next, and roll shortly thereafter. This regime leaves the archaeologist with little time to search weathered fields, and rolling tends to press all stones, including flints, into the ground. Between cultivation and rolling there is a short interval when weathering of the soil is rapid. A fen blow, when winds whip up the loosened soil and carry some of it into the next parish, county, or the North Sea, exposes heavier elements on the field, and provides ideal conditions for the revealing of artefacts. At these times the lithic elements of prehistoric sites can be laid bare and easily recognised, and this is when the archaeologist must be present and effective.

A further adjustment is needed if the soil has been de-stoned prior to sowing for carrots, a common crop on acid soils. The soil is in effect passed through a coarse sieve which collects all big stones, including axes and large flakes; the result is a serious distortion in the composition of the material that represents the ancient activity. Carrot harvesting machines also collect large objects when the crop is extracted in bulk from the ground. The 'carrot effect' in the assessment of Fenland collections cannot be ignored, and the significance of carrots on sites where stone settings once existed, for tents or other structures, will be obvious.

### Site definition

Note has already been made in chapter 1 of the problems of site designation and the separation of 'background noise' from discrete lithic concentrations representing real (to us) archaeological sites where specific activities took place. At Isleham a special study was carried out to provide a comparison between sites and scatters (Hall forthcoming). 'Background' studies were made in two fields within the Isleham complex, and compared with the results from two nearby 'sites' identified in accordance with the Fenland Project definitions as outlined in chapter 1. Transects were walked on all four fields, collecting all visible flints 2.5m either side of the walker. The numbers of flints per hectare on the two identified sites were 116 and 172, while on the background areas there were only 8 and 14 (see also Hall 1992, 90; Healy and Silvester 1991, 140). This suggests that the identification of sites relies on intensive survey and the collection and quantification of all lithic material; 'special finds', those artefacts that are normally collected because they appear to be diagnostic (arrowheads, scrapers etc), are only part of the story.

### Interpretation

If this simple study is accepted as showing the existence of prehistoric sites within a generally sparse but variable background noise, we must ask what the sites represent. In the past it has been suggested that they were flint-knapping sites, where nodules were prepared and separated into useful shapes and sizes. Yet the distribution of lithic sites in the Fenland does not support such an interpretation. If there were only a few of these sites, perhaps the idea could be sustained, but with hundreds of such sites recognised, in a landscape where flint sources are very poor, it hardly seems likely that such an abundance of flint would be imported for primary and secondary work in such an isolated and concentrated part of southern England.

The locations of the sites are almost exclusively on light soils and near water, just as are most agriculture-based and domestic sites of later periods. It seems likely, therefore, that some of these lithic sites, located as they are in places which would have suited both hunter-gatherers and the first farmers of the region, represent

settlements of the early prehistoric periods. Microwear studies and silica staining on flints, and the presence of pottery, on some sites demonstrate domestic activity of 'Neolithic' character, and there seems little reason to doubt that the flint concentrations of Mesolithic type represent occupation debris as well. This is likely to have been seasonal in character, and llittle impact on the woodland has been detected.

## The earliest human presence

As outlined in chapter 2, the Fenland has undergone a series of variable episodes of geological, climatic, and environmental change throughout its history, and has never been of uniform character. The major problem in dealing with the earliest periods of human occupation is that many of the Fenland deposits contemporary with that occupation have either been destroyed or are buried deep beneath later sediments. It is therefore difficult to make useful comments on the conditions under which early humans settled, and indeed what prompted such settlement. A few conjectures appear at the end of the chapter.

The Fenland basin was established in the Quaternary period through a combination of riverine, geological, and climatic action. In late glacial times, the Devensian ice flowed through the Wash gap into the Fenland basin, blocking the basin and thereby creating a lake mostly free of ice sheets. The gravel spreads at Stickney and Hunstanton represent Devensian morainic material, and the last ice advance was also responsible for the terrace fans and other gravel spreads which edge the northern Fenland basin. Periglacial conditions existed around the edge of the basin which was affected by solifluction, ice wedge casts, and by water-laid and aeolian soils. The Fenland landscape created by these diverse activities and subjected to these phenomena would have been a terrain of humps and hollows (Waller forthcoming).

Previous glacial and interglacial episodes had left their marks upon the land, and obscured, altered, or destroyed many of the traces of the very earliest human activity. The chance discovery of stone tools of Palaeolithic character, such as hand-axes or large flake implements, can tell us little about the nature and intensity of the first occupations of the region, perhaps over a period of some half million years. The finds are 'background noise', and cannot be interpreted as kill sites, temporary camps, or chipping floors (Fig 13). All sites have been affected severely by later climatic episodes of erosion and deposition. Many of the discoveries of these traces of the first humans to penetrate the Fenland have been made by farm-workers intrigued by recognisably large axe-shaped tools and flakes; they were mostly unrecorded until the Fenland Project instituted its survey and made contact with landowners and users, thereby encouraging the revelation of mantel-decorating finds as well as of objects cast aside as of no interest. Palaeolithic axes of classic Acheulean type from Whittlesey, Chatteris, Ramsey, Wimblington, and other sites (Hall 1987, 56; 1992, 84, 41, 63) provide a hint of activity in the most ancient Fenland, where waterlogging and deep erosion were not yet evident. The places where rivers and streams flowed into the basin would have been particularly favoured for this earliest of human occupation, as is suggested by the discoveries of Palaeolithic axes near Sutton, part of a scatter of such finds at the Ouse outflow into the basin (Hall forthcoming); it seems likely that there was substantial occupation here near the junction of two environments, upland and lowland (or upslope and downslope, as the elevations can hardly be termed upland). This positioning, however, was one to be repeated innumerable times in the post-glacial period. Only one of these very early sites has yielded a substantial quantity of hand-axes; at Feltwell, the Shrub Hill pit contained over 200 axes (Fig 14), but unfortunately the precise character of the living floor remains indistinct (Silvester 1991, 27).

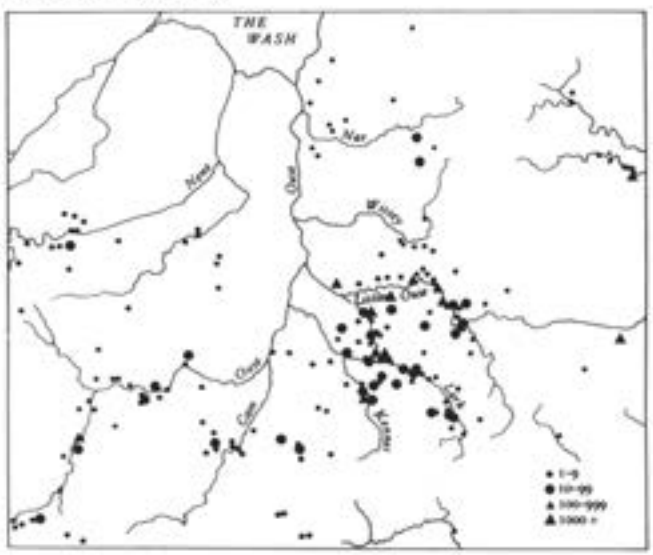



*Fig 13 Map of Lower and Middle Palaeolithic finds in the southern Fenland, based on evidence prior to the survey (Coles 1965)*

These finds represent human presence in the Fenland about half a million years ago, and the immensity of such a time frame is as difficult to grasp as the way of life of these shadowy people. Much later in date are the traces of settlement and activity at the very end of the glacial period, or more likely the beginning of the post-glacial period, represented by a long-blade industry from Methwold (Silvester 1991, 62), where the finds were collected by an observant farmer during dike recutting. The site lies on a mineral soil ridge, some 500m outside the fen slope, perhaps beside a watercourse running to the west from the Hythe Valley. Part of the occupied ridge is now exposed, but parts are still buried by peat and thus provide an opportunity to examine an early occupation in undisturbed conditions. Its date is likely to lie somewhere in the order of 9000–6000 years BC. Another site of the same general age was discovered some time ago at Hockwold; over 600 flints were recovered, including blade cores, long blades, and retouched blade fragments (Wymer 1985, 81).

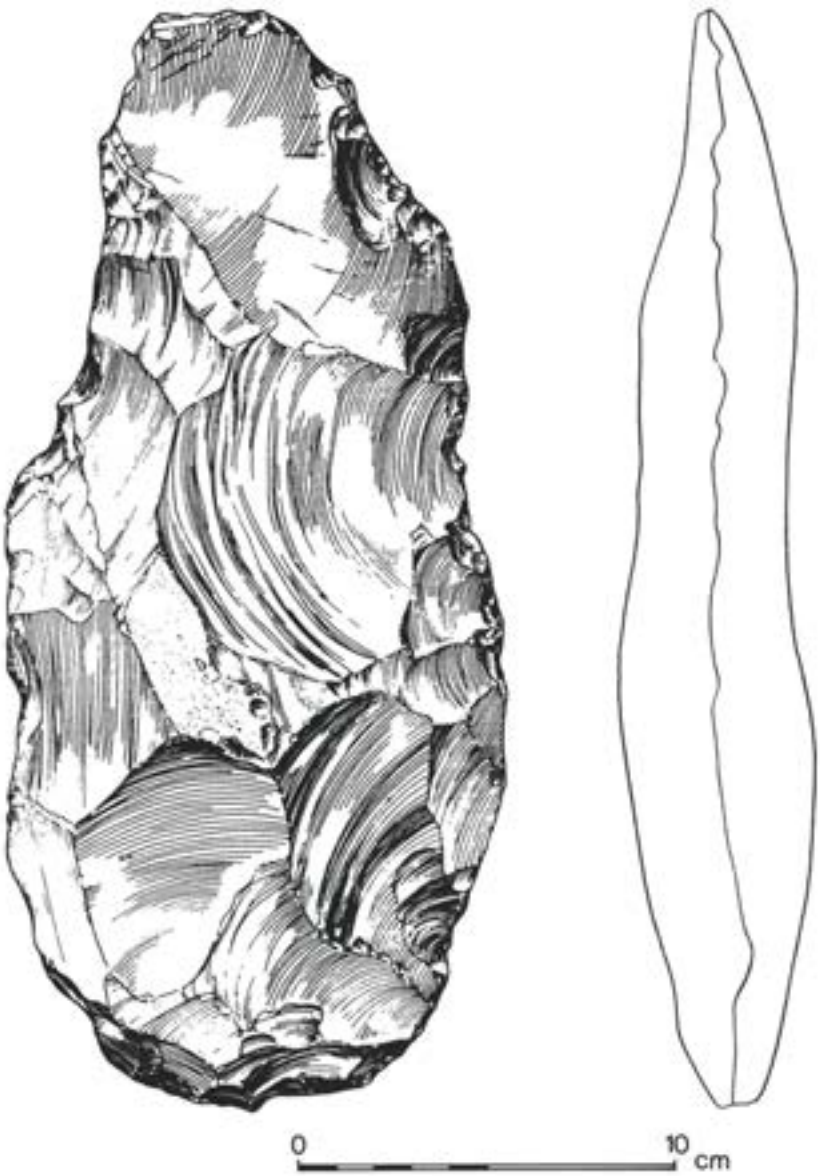



*Fig 14 A giant hand axe from Shrub Hill, Feltwell, Norfolk; the axe is 285mm long, and is one of over 200 recorded from the site, on a low gravel island in the Fenland basin (from Wymer 1985)*

## The early post-glacial period

The early post-glacial period of the Fenland is inextricably bound up with episodes of environmental change which were determined by geological and geographical alteration as well as by the natural succession of plant life and animal life. That such changes had taken place in the Fenland was known at least 300 years ago:

> That this vast level was, at first, a firm dryland, and not annoyed with any extraordinary inundation from the sea, or stagnation of fresh waters, I shall now endeavour to manifest; which may perhaps seem strange to many; but when it is well considered, that timber-trees will not grow and thrive where water, for the most part, stands; or in moor, which by tract of time is bred and increased in such moist places, both the one and the other may with much probability be granted. The case being then thus stated, it now remains for me to prove, that such have heretofore been bred, and prospered in sundry parts of this now fenny country: which is no hard matter to do, divers persons, yet living, being able to testify, that in the late digging of those channels and drains, as have been made for the exsiccation thereof, great numbers of such trees, of several kinds, have been found; most of oak and firr, and few of them severed from their roots: but of such as be so severed, the roots are observed to stand in the firm earth below the moor; of which sort I myself have seen some, that were taken up in the fens near Thorney; and have had credible information of multitudes found in other places...; in Marshland...there was discovered at xvii feet deep, divers furze bushes, as also nut-trees, pressed flat down, with nut sound and firm lying by them; the bushes and trees standing in solid earth, below the silt, which hath been brought up by the inundations of the sea, and in time raised to great thickness.

With these words Dugdale (1772) identified an early landscape of the Fenland, perhaps even that of the Mesolithic period. Evidence of the early post-glacial period identifies a Mesolithic landscape essentially dry

and well drained by a number of rivers, ancestors of those we know today, although the ancient streams flowed in different channels from those of the recent past. In the north of the Fenland, the Mesolithic landscape is almost completely buried by later deposits, and the early post-glacial surfaces in much of Lincolnshire have been submerged by silt for several thousand years.

During the survey of the Lincolnshire fens, some time was spent in the middle Witham valley, between Lincoln and Boston (Lane 1993, ch 2). The valley of the Witham has had no comprehensive survey, although a large number of sites and artefacts have been recognised from time to time. Much of the valley has substantial brackish/marine sediments, some overlain by peat now mostly wasted away. At Dogdyke, a large gravel island at the confluence of the Witham and Kyme Eau (now including the river Slea) represents an exposure of the pre-Flandrian surface, and a smaller outcrop beside the Witham contained Mesolithic and later Neolithic flints, yet another hint of the likely spread of early prehistoric sites hidden by later alluvium.

In the south, however, evidence has survived and is visible. In general it would appear that by the seventh millennium BC the deepest river channels had begun to accumulate peat, which formed in shallow embayments and spread out on to the flatlands. Peat fens slowly began to form, but even along the valley of the ancient Ouse where the mire was actively growing, there would have been extensive dryland. Where early occupations have been recorded in such circumstances there is every chance that other sites lie still buried. We see only through a few windows into the vast Mesolithic landscape, an important point to remember when considering the distribution of early sites on what seem to be islands in the fen: they were not islands in the earliest post-glacial period, and represent only the slightly elevated parts of a once-extensive surface. For example, Doddington, Manea, and Chatteris would have been linked to the Isle of Ely, itself attached to the mainland to the south (Hall 1992, 96). Only the lowest parts of the fen basin succumbed to peat at first, and areas as low as -5m OD today, such as Wood Walton and Holme, were overtaken by *c* 7500 BC.

Although it is difficult to sustain a view opposed to the notion of a Mesolithic landscape that was dry and wooded, there is increasing evidence that even during this period, from *c* 6850 to *c* 5400 BC, the onset of marine influence had led to the formation of expanses of silt south of the Wash, and to waterlogging of valley bottoms and the inception of peat beds well before 5400 BC (Fig 15). The spread of peat formation across the land emanated from the main river valleys and would have advanced as a narrow band in advance of the rising sea level. At Welney Washes, which lies 30km from the Wash shore of today, the earliest marine incursion is dated *c* 5200 BC, and by *c* 3200 BC the effects were seen at Feltwell Common, only 13km away to the east; this is a vivid demonstration of the very slow shift into Fenland conditions, which would yet have been clearly perceptible to the groups occupying the region: a drift into wetland at a rate of perhaps 10m per year would be disconcertingly evident over the short lifespan of a hunter-gatherer accustomed to an environment with regular seasonal patterning. On the Nar, peat formation began by 4300 BC, but it is dated at Shippea Hill and also at Holme Fen, 40km inland, to *c* 5200 BC. The pattern of waterlogging is complex and represents one of the major problems in deciphering and explaining the distribution of the earliest human occupation; each major embayment had its own sequential pattern of environmental change and, where one area was strongly influenced by marine incursion, another was more isolated and the effects felt later and in a different way, for example by freshwater backup and ponding. Therefore a sparse and discontinuous distribution of Mesolithic occupation sites may represent old land surfaces not yet seen by archaeologists but containing ancient sites as well as surfaces already made inaccessible to Mesolithic groups by marine influences.

## Early human exploitation

The earliest human exploitation of the Fenland with a discernible pattern is likely to have begun in the seventh or sixth millennium BC. The landscape must have been attractive for hunter-gatherers gradually infiltrating new territories released from the cold and cool conditions of late glacial and very early post-glacial times. Although the archaeological evidence recovered by the Fenland Project consists essentially of lithic material, we can make some assumptions about the way of life of the Fenland groups from evidence derived from other areas of Mesolithic Europe. The first point to make is that the Fenland was probably very sparsely populated for the three or four thousand years prior to the arrival of the first real settlers, those who introduced the farming regimes that have persisted until today. Although the survey identified several hundred sites with Mesolithic material, taken over the length of the period these represent a very low level of population, even given the likelihood that many more sites still lie buried beneath covering peats and silts.

The general distribution of Mesolithic sites in the Fenland is shown on Figure 15, with the silts of early marine incursions of *c* 5400 BC, the late Mesolithic period. Later and more extensive silt will have sealed other Mesolithic surfaces and rendered them inaccessible to survey. A majority of the known sites lie at or near the present-day level of the sea (0m OD), on or near the edge of the Fenland basin, and in some cases slightly elevated over the basin itself. Favoured positions were near the outlets of streams and small rivers where they flowed into the Fenland basin. Here, vegetation was more luxuriant, animals came to drink, and encampments, either permanent or seasonal, were established. Birch, succeeded by pine, probably dominated the lower landscape in the eighth and seventh millennia BC, but already a warming climate was encouraging the spread of elm, oak, and hazel which began to clothe the uplands. The whole area was

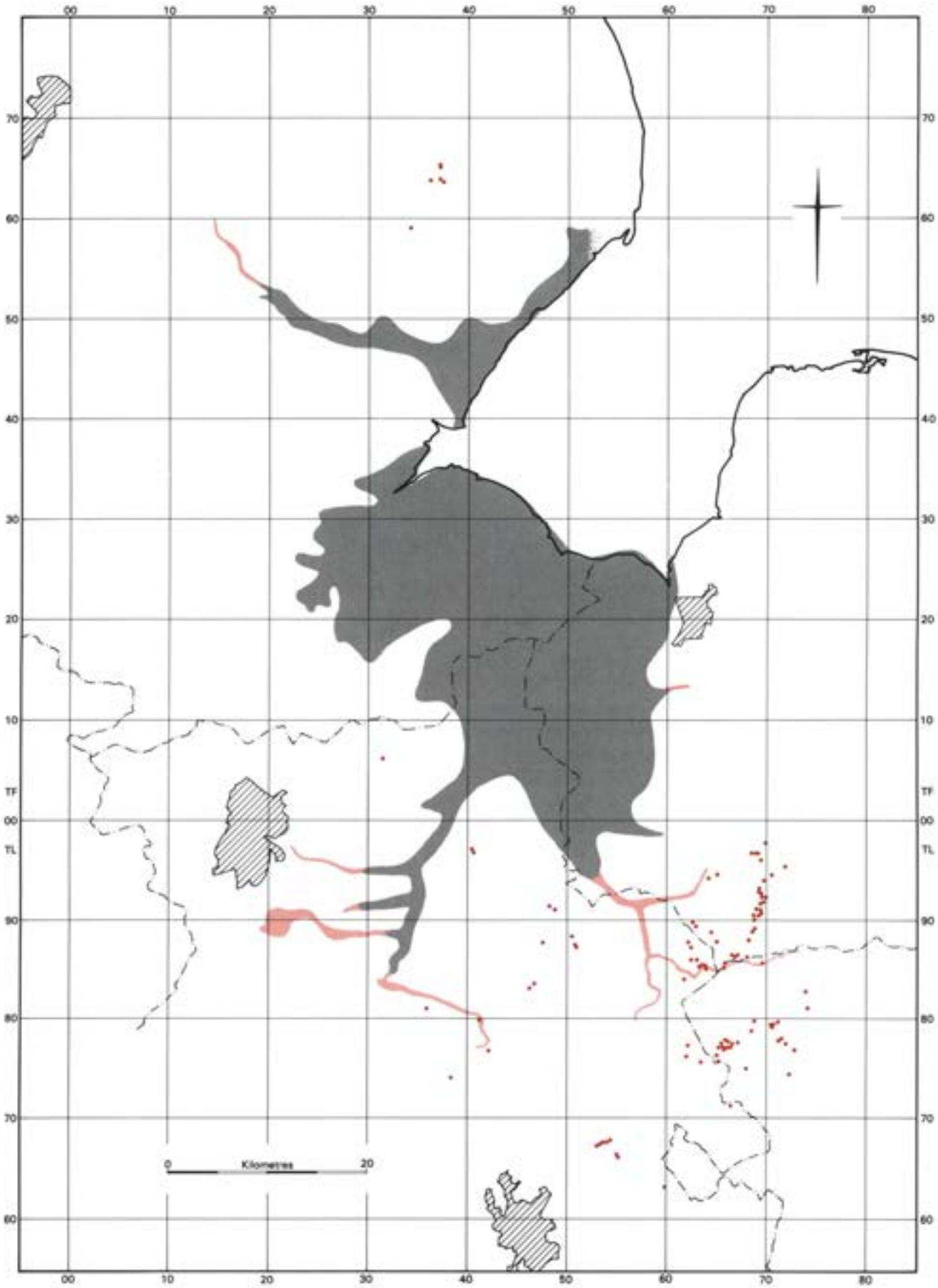



*Fig 15 The Fenland, c 5300–4450 BC, showing the advance of silts (grey stipple) and inland peat formations (red stipple) in river valleys of the south; the distribution of Mesolithic material recovered in the survey is very sparse in the north and west, with scatters on the south-central peninsula and a more concentrated pattern in the south-east*

wooded except for river channels and the early-formed patches of waterlogged peats near the watercourses, as well as the silts already deposited near the Wash.

The lithic material most commonly found and identified as 'Mesolithic' consists of flint cores, flakes, blades, and smaller chips. The blade cores are regular and often bipolar, there is a high percentage of soft hammer blades with thin butts, and the retouched tool forms include microliths, burins, and truncated pieces. The source of flint was probably in the gravel terraces and spreads on the floor of the Fenland, and also here and there in nodules weathered out from the chalk of the eastern and southern uplands; but there was no single major source. The flint on many sites was probably collected some kilometres away, carried back as nodules or pebbles, and knapped on site. The mere listing of sites in the survey records masks site differentiations which should be possible to discern by closer identification of the variable character of the lithic industries; this may be a fruitful research subject for a later date.

## The eastern fen

Along the eastern edge of the Fenland basin we can see a clear pattern of Mesolithic occupation, with the ancestral Little Ouse and Wissey rivers acting as boundaries to south and north. The sites are strung out along the base of the slope and there are concentrations adjacent to the major rivers some distance from the fen edge (Silvester 1991, 80). It may be possible to identify territories or at least the normal catchment areas of the hunter-gatherer groups who exploited this environment. The evidence taken as a whole is a major accomplishment of the Project, each site wholly unspectacular and seemingly of little significance, yet taken as a group demonstrating a patterning of activity rarely seen.

For the Mesolithic communities that settled in the north near Methwold (Fig 16), the fen basin appeared as a densely wooded landscape featuring only the Catsholm ridge and the ancient river Wissey. Peat formation had not yet begun in this part of the basin except in the lowest channels of the river. The ancient river drained south of Southery island, but its course at Stubb's Hill is masked by clay. Along the river were encampments of hunter-gatherers, particularly at the western tip of the Catsholm ridge where three sites within a radius of about 100m probably represent real occupation amid the 'background noise' of lithic spread. Four hundred metres to the west is another site on a gentle slope, and the ridge was clearly a focus for Mesolithic activity, within easy sight and reach of the river Wissey only 500m away (Silvester 1991, 62). Another focal point for activity lies on the southern edge of the Hythe valley. This marks a distinct inlet and entry into the eastern fen edge; perhaps there was a major stream issuing at this point, certainly capable of backing-up with clay at a later date.

Southwards towards Feltwell, evidence suggests that during the Mesolithic and early Neolithic phases the natural woodland was little affected. At Cross Bank a pollen study indicates the presence of lime, hazel, alder, and oak, the last two becoming more dominant over time as the watertable gradually rose. Several streams meandered through the woodlands, one across the basin towards the Little Ouse cutting down the valley at Feltwell. The Shrubhill island, once occupied many millennia previously, showed as a low rise in the forest. Most of the Mesolithic scatters in this area come from the skirtland ridges, with a small site on an island near Brandon Bank (Silvester 1991, 32). West of Whiteplot, three sites indicate a focus of activity, four concentrations lie on sandhills on the northern tip of the Kettle Lane spur, and three sites at the mouth of the Feltwell valley occupy a ridge. All these sites have lithic material of Mesolithic character, although some are predominantly of later date; they represent a continuity of interest in the exploitation of the wooded landscape adjacent to the watercourse.

In the Hockwold area, peat growth during the Mesolithic period was restricted to the deeper channels of the Little Ouse and other streams; the Little Ouse flowed westwards to join a system draining into the Wash near Wisbech. The sandhills at Hockwold beside the river were favoured sites for hunter-gatherers (Silvester 1991, 52). Downstream to the west, at Shippea Hill, Littleport, were other Mesolithic occupations recognised long ago by the Fenland Research Committee. The Decoy Farm sandhill near Hockwold is a linear ridge running at an angle to the ancient river course (Fig 16) and a detailed survey by the Project revealed a spread of Mesolithic material along the whole length of the exposed ridge, which dips down into the peat fen where material is likely to be well preserved, dry, and undisturbed (Healy and Silvester 1991).

To the north-east only 1km away is another sandhill with an edge also dipping beneath peat. The exposed area of 5ha contains wide scatters of lithic material, and the Mesolithic occupation covers over 1ha, one site divided by a peat-filled depression and three others nearby (Silvester 1991, 52). The ridge was probably used as a major encampment with a number of localised concentrations representing particular episodes of activity. Another smaller sandhill to the east has a Mesolithic site on its western edge, and near Cloud and Cowles Droves a further site is just emerging from the peat. This suggests that more sites, on even lower sandhills, will appear as peat shrinkage continues. The whole complex at Hockwold lies within 300m of the ancient Little Ouse, and this river probably served both as an attraction for plants and animals gathered and hunted by the Mesolithic groups and as a route along which the forests could most easily be penetrated. Further along the Little Ouse there are other Mesolithic sites in the Shippea Hill area, and, where the river cuts through the Breckland, a further concentration reinforces the impression that the river played an important role in the foraging activities of these early groups.

South of the Little Ouse the evidence for Mesolithic occupation is equally extensive (Martin in prep a). The

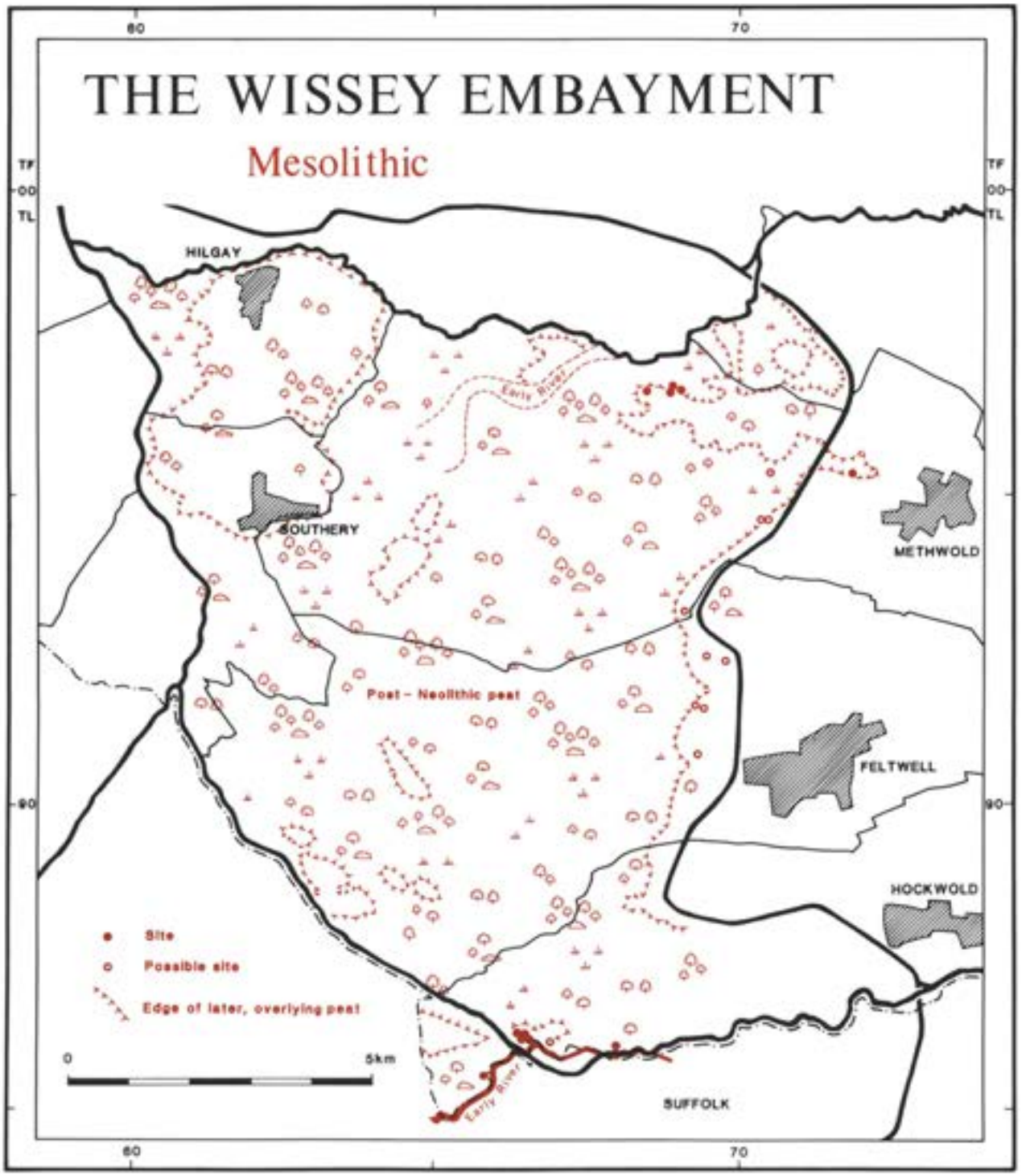



*Fig 16 The south-eastern Fenland in the Mesolithic period, showing the spread of sites along the fen edge, on the Catsholm ridge in the north, and on islands by an early river (Little Ouse) in the south (from Silvester 1991)*

modern fen edge itself is very wide here, with numerous islands and ridges of light soils now exposed as the peat wastage continues, 'offshore' of the upland edge. Activity by hunter-gatherers over this hummock and hollow landscape was probably affected over time by the early episodes of flooding, events which improved the quality of the environment for the communities. A number of lithic scatters of Mesolithic character have been recorded in the Lakenheath area, one of them consisting of thousands of microliths and other implements and debris from a hollow in an inland sand dune complex (Jacobi 1984, 63–9). To the south-west are other sites, including one (Phillips Site 1) stratified in a dark organic soil beneath a Bronze Age occupation (Kelly 1967) and another (King's Site) where the excavator recorded 'opposed half-moon shaped structural marks and stake holes' associated with a large quantity of Mesolithic artefacts (Owles and Smedley 1963, 352; Wymer 1977, 261). All these major occupation sites lie just inland of the perceived fen edge or on its extreme edge; other scatters, less extensive, lie well to the west on sand ridges which were among the first to be affected or isolated by the onset of flooding.

## Shippea Hill

At Shippea Hill, survey revealed two Mesolithic sites on a sand ridge, the most westerly outlier of a complex of sites generally known as Peacock's Farm, Shippea Hill, but which is in reality Peacock's Farm, Littleport. The complex is best known for the work of the Fenland Research Committee in the 1930s. The Littleport sites were extensive, spreading along sand dunes now exposed as narrow ridges, and at Peacock's Farm they extend down to -5m OD. About 15 Mesolithic concentrations are now known in this immediate area, together forming evidence for an intensive and probably long-lived interest in the woodlands and river banks, and the incipient peat fen, at this point.

Although not part of the Fenland Project's work, the early excavations in the Shippea Hill area are relevant to the survey's results. In the 1930s and 1960s a multidisciplinary team from Cambridge carried out work on sites located on sand ridges on both sides of an ancient course of the Little Ouse. The excavations were classic in intention, to expose and to section the occupation surfaces as they descended beneath the peat that lapped the sands. In 1932 and 1934, Mesolithic and Bronze Age material was recorded at Plantation Farm, and Mesolithic, Neolithic, and Bronze Age material at Peacock's Farm (Clark *et al* 1935). In 1960 further excavation at the latter site yielded charcoal for radiocarbon dating and cores for pollen analysis, both techniques in their infancy (Clark and Godwin 1962). The Mesolithic occupation had taken place within a wooded environment, with pine dominant and oak and elm already well established along with hazel. At the Neolithic level, alder and ash were present and elm was in decline, as plantain increased as well as bracken. The bones of sheep suggested that open pasture had been created, but the area was likely to have been small. The radiocarbon dates were not internally consistent, with charcoal from the Neolithic horizon at *c* 3700 BC and the peat enclosing it *c* 400 years later; the Mesolithic horizon was dated *c* 4400–3500 BC.

This work at Shippea Hill was one of the inspirations for the Fenland surveys, as it established the essential requirement that archaeology and palaeoenvironmental studies had to go hand in hand in order to understand the ancient Fenland. This requirement was met by the subsequent (1984) examination of the site at Peacock's Farm by Whittle and Smith, and also at Letter F Farm 2.5km away to the north-west, on the contemporary fen edge (Smith *et al* 1989). The Peacock's Farm occupation was essentially Mesolithic in character and dated before *c* 6000 BC; there was some Neolithic activity at a much later date. At Letter F Farm the concentrations were reversed, with a strong Neolithic presence dated to *c* 3900 BC. The examination of the Peacock's Farm sand ridge revealed some shallow pits interpreted as hearths, and the Mesolithic flint assemblage included burnt pieces as well as cores, scrapers, burins, awls, a pick, and microliths (Fig 17). More interesting was the environmental study of the immediate

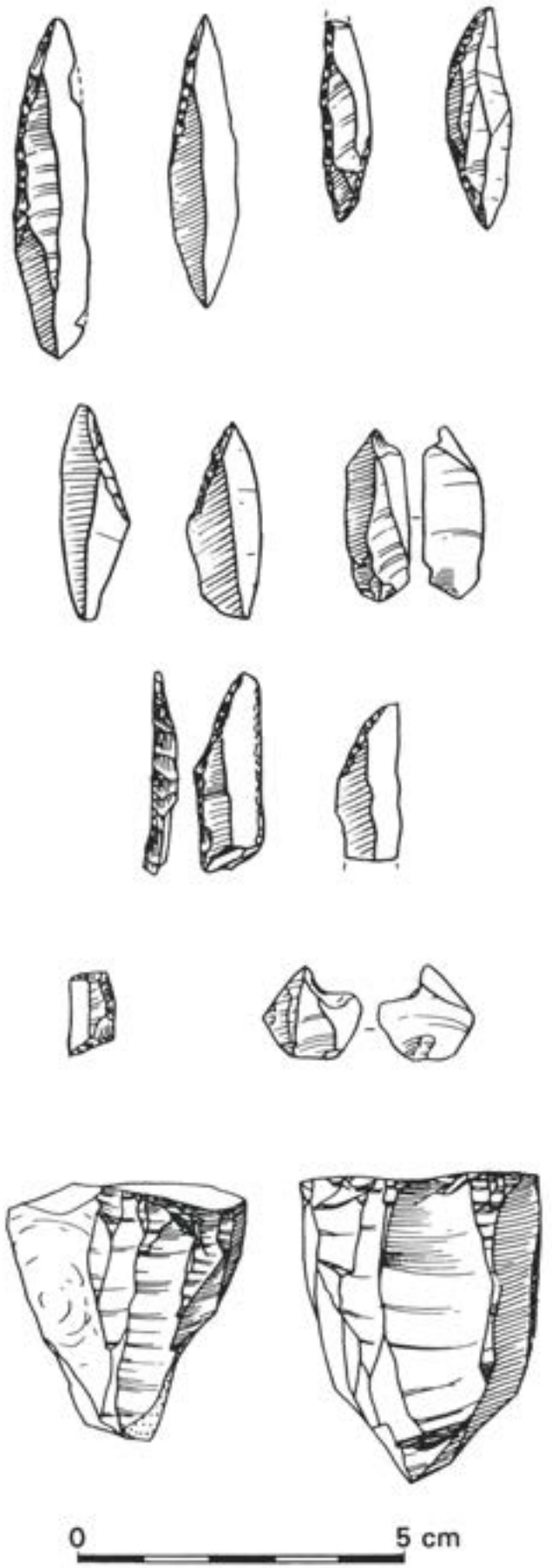



*Fig 17 Mesolithic flints from Peacock's Farm, Shippea Hill (scale 1:1; from Clark 1955)*

area; this showed a dense forest slightly affected during the early Mesolithic occupations, with more clearances about 250 years later perhaps due to the presence of hunter-gatherers *c* 6300 BC. The opening persisted for *c* 500 years before the forest began to reassert itself, and it is suggested that burning of the woodland may have been carried out by the Mesolithic groups. The effect would have been to increase the production of vegetation by regenerating herbs and shrubs in particular. Game, attracted to the improved browsing, would concentrate on the area and be more readily hunted. This is a form of resource production, the management and alteration of woodland/grassland.

As the Mesolithic occupations here at Shippea Hill were associated with a rather amorphous 'black band' of peat, it is tempting to suggest that the band represents concentrated episodes of burning of woodland, on a yearly or sequential basis. If areas burned are small, pollen analysis will rarely pick them up, but here the area may have been quite large, several hectares, and the implications for Mesolithic interest and endeavour are enhanced. This need not mean that Mesolithic occupation was permanent and long-term; the evidence from the site suggests a series of occupations, with flint cores curated for subsequent use and tool kits with restricted types. Peacock's Farm has been suggested as a summer camp for fishing (Jacobi 1984, 62), but its position as a hunting camp during the summer and autumn seems equally tenable, and perhaps complementary.

## The southern fen

Central to the southern Fenland was an elevated region made up today of the March-Manea-Chatteris triangle; this could by no stretch of the imagination be called an upland, but a small series of Mesolithic occupation sites has been identified along the eastern edge, including sites at Pymore, and the slight elevations were probably significant in attracting groups who could exploit the woodland and the streams of the Fenland floor (Hall 1987, 39; 1992, 74). The March sites lie near the ancient river courses of the Nene and Ouse. The Gaul Road, March, site is an interesting example of survey work. The location was already known, and F M Walker's collection of axes, cores, flakes, and blades, with a few retouched pieces, lay in Wisbech Museum. The Fenland Project succeeded in identifying two Mesolithic sites at Gaul Road, on the sides of a roddon that penetrates into March itself (Hall 1987, 39). The roddon may represent an ancient watercourse contemporary with the occupations, and useful environmental evidence may remain buried in waterlogged deposits. The survey located relatively few Mesolithic artefacts from the Walker sites which probably indicates that the 1920s collector had scoured the fields repeatedly.

At Manea, on the eastern edge of the central block, an earlier flint collector's sites were also identified by the Fenland Project (Hall 1992, 78). Occupations took place on small pockets of sandy gravel overlooking a wider area of flatland which was beginning to become wet, gradually drowning the woodland and opening up parts of the landscape. Although there is no evidence from this area that humans had any real impact on the vegetation at this time, a Mesolithic axe from Bedlam Hill might suggest some minor clearance activity, and it is of course obvious that the woodland was used for supplies for the hearth, shelter, and other purposes. Of Mesolithic clearances, by fire or axe, there is no sign.

A remarkable complex of prehistoric sites lies north-west of Broad Hill, Soham, in a tight concentration only 1 sq km in extent (Hall forthcoming). The sites occur on sandy soil and consist of a profusion of lithic material, most in pristine condition as if rapidly buried and recently exposed. The complex is one that escaped both the Fenland collecting mania of the past decades and the 'carrot effect', and so a large number of retouched pieces ('tools') lay amid the waste debris so often left behind by the collectors; two Mesolithic axes lay on one site awaiting recognition (Fig 18). Most of the concentrations of flints include both Mesolithic and Neolithic forms, and several lie adjacent to peat, indicating that the occupation surfaces probably extend down into wholly undisturbed deposits, possibly dampened, if not waterlogged, by the extension of the peat fen backing in from the east. Almost the same circumstances and potential exist at Witcham, where submerged small sand 'islands' are only now touched by ploughing, and lithic material is uncollected and may extend beneath the fen.

At Pymore, Little Downham, already noted above, all the Mesolithic sites lie on low islands or promontories now just rising from the peat (Hall forthcoming). Two sites are on sandy gravel adjacent to a pingo and probably represent emplacements designed for fishing, fowling, and shooting other animals passing to and from the basin; two duck bills were recovered from a dike side, perhaps contemporary with the Mesolithic occupation although there is later activity attested at the spot. To the north of Pymore at Primrose Hill is an elongated island of gravelly sand strewn with flints, including a Mesolithic blade industry, and to the east of the Hill is another island with traces of Mesolithic occupation. Further south on the Pymore island are three more sites with Mesolithic and later material. The whole complex speaks of an intermittent but persistent exploitation of the low-lying lands which by *c* 4500 BC were sufficiently wet to encourage a variety of wild plants and animals attractive to hunter-gatherers (Fig 29).

Further south at the edge of the Fenland a few more Mesolithic sites have been discovered, all on pockets of sand or gravel adjacent to water. One of these sites on a peninsula at Somersham is very extensive; the surface collection yielded about 800 flints, including blade cores, a tranchet axe, microliths, and thumb scrapers, together with many utilised flakes. As part of the occupation surface runs under clay into waterlogged deposits, there may well be structural or organic evidence surviving (Hall 1992, 50). In the western Fenland material may be well preserved at Newborough in

Borough Fen where the ancient surface is buried under silt (Hall 1987, 21).

In the south, another extensive late Mesolithic occupation was recorded at Foulmire Fen (probably Fowl-mere), Haddenham (Hall forthcoming). A small excavation yielded 1400 flints mostly of Mesolithic character (Evans and Hodder 1985, 22), deposited on sands and probably representing an occupation designed to exploit the wetland environment now near at hand, as the influence of sea level rise began to be felt even so far inland in the fourth millennium BC. Nearby, at Sutton, islands of light soil represent Ouse river deposits next to an earlier deeper channel; one of the small islands, only 200×60m, was occupied by hunter-gatherers whose cultural remains probably extend down beneath marine clay (Hall forthcoming). On the south edge of the ancient valley of the river Cam, near Swaffham Prior and Bulbeck, a sand ridge only 80–140m wide falls sharply into the fen. A series of sites closely packed together lies along the ridge, consisting of both Mesolithic and Neolithic material and representing occupations established as much for the wide viewpoints over the lower land as for the immediate economic benefits of the ridge woodland itself (Hall forthcoming).

## The arc of sites

The great arc of known sites along the eastern edge of the basin, swinging down around the southern edge and with major incursions along the river valleys penetrating into the basin, is now apparent. The relative scarcity of sites in the central region is also probably a real event. It is as if the hunter-gatherers clung to the edges of the great basin and did not often penetrate to the major 'islands' or peninsulas of the central Fenland. The Isle of Ely and its extensions have little trace of much Mesolithic interest. The eastern edge of the fen basin extends beyond the Wissey into the catchment of the Nar, which flows today from Castle Acre out into the basin to join the Great Ouse. In the Nar valley, the Fenland Project identified Mesolithic occupation on a sandhill at Marham adjacent to an early river course, and numerous flints from the southern slopes at Shouldham suggest that Mesolithic activity was more widespread, if not concentrated in discrete identifiable 'sites' (Silvester 1988a, 121, 133). The development of peat in the valley by *c* 5300 BC suggests that Mesolithic surfaces may lie submerged.

The Shouldham site lies on a sand ridge about 60m in diameter just above the ancient river with a small stream behind (Silvester 1988a, 133); when examined by a small excavation, the lithic material seemed to be predominantly early Neolithic in character, but some Mesolithic flints were also present and the occupation may span the period of transition (Leah 1992, 57). The patination of the two 'sets' is distinctly different, with the Mesolithic grey-white and the Neolithic dark and fresher (see chapter 4). At Marham, upstream, excavations of an early Mesolithic settlement beside the river

*Fig 18 Mesolithic axe from the Soham complex (photo Rog Palmer)*

revealed no features (Leah 1992, 57); the debris recovered during survey was in a secondary position, in river sediments.

## The northern fen

Rather less is known further north in south Lincolnshire. Mesolithic activity is scarcely represented apart from traces at Morton Fen and Market Deeping (Hayes and Lane 1992, 121, 182). The problem here is that inundation from the Wash has buried entire landscapes. At Cowbit, for example, the Mesolithic surface is submerged beneath up to 10m of sediments; at -6m OD, an early peat, forming on weathered glacial till, is dated *c* 4700–4400 BC. The Fenland Project carried out some survey in the northern Fenland, west of Skegness, and although this was limited in its extent, a sample of the archaeological evidence was revealed in the West Fen, which lies between Boston and Horncastle (Lane 1993). The Mesolithic landscape here was probably mostly dryland, with extensive woodlands of lime, oak, and elm succeeding earlier birch and pine, but also with the first signs of river-based flooding and peat formation in the lowest hollows of the Fenland basin. The Stickney ridge juts into the basin here, from the southern edge of the Wolds, and this was a focus for Mesolithic occupation, providing viewpoints over a wide catchment from the woodlands behind.

At East and West Keal, a number of lithic scatters, including blades and microliths (Fig 19), occur on sandy hillocks on the ridge and probably represent sites protected until recently and thus undisturbed, although not waterlogged. The sites found must indicate that more such occupations exist along the northern fen edge, set close to ancient rivers and streams overlooking the developing wet fen. Further survey work would begin to show the pattern of occupation, but many sites will lie beneath the later Flandrian deposits. Although the evidence for the existence of a truly wet fen during this episode is sparse, a description by Camden of the East and West Fens near Stickney at *c* AD 1600 may evoke some of the activities that Mesolithic hunter-gatherers and their successors had engaged in many centuries previously:

> The East Fen is in quite a state of nature, and exhibits a specimen of what the country was before the introduction of draining. It is a vast tract of morass, intermixed with numbers of lakes, from half a mile to two or three miles in circuit, communicating with each other by narrow reedy straits. They are very shallow, none above 4 or 5 feet deep, but abound with pike, perch, ruffs, bream, tench, dace, eels etc. (Camden 1637)

Let us apply that picture to a small, prehistoric occupation at Mexican Bridge, Midville. Here, a diminutive sand island lies off the morainic ridge of Stickney (Fig 25). Field survey revealed a scatter of lithics, considered to be of Neolithic–Bronze Age date but revealed upon

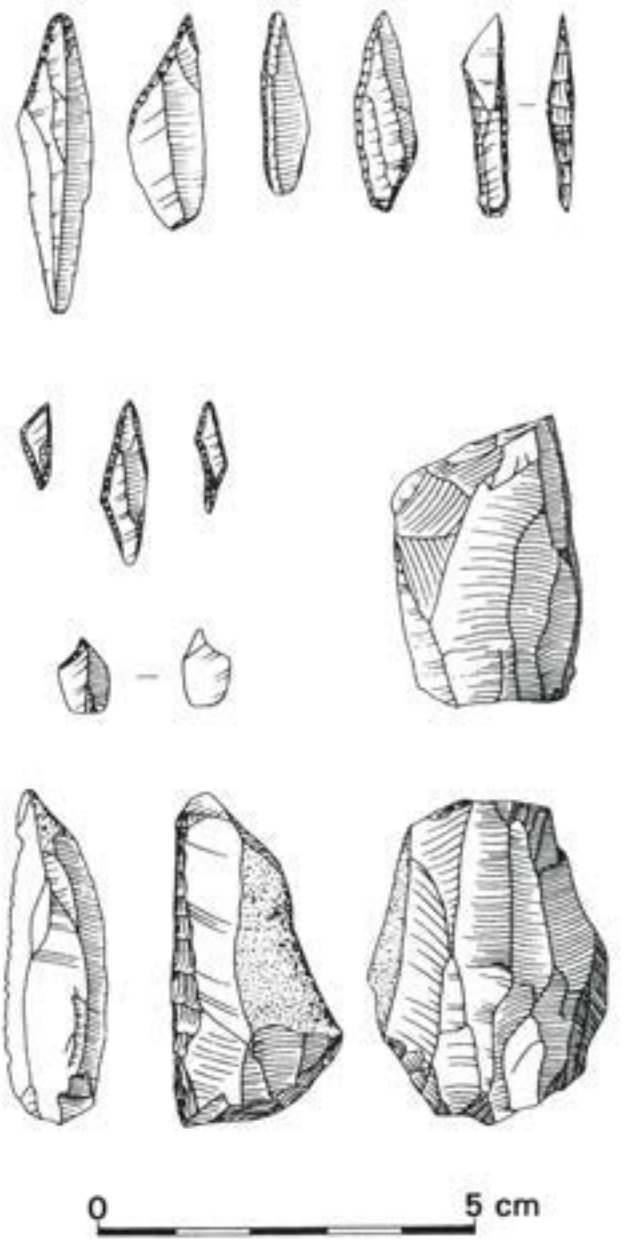



*Fig 19 Mesolithic flints from Hall Hill, West Keal, typical of material found by the survey (from May 1976)*

excavation to be more Mesolithic in character (Lane and Trimble 1992). The occupation was on a dry surface, and probably consisted of seasonal or temporary camps exploiting the wild resources, perhaps even those described above. Later, freshwater deposits overran the island, sealing the traces of activity beneath peat, itself then submerged by marine silts.

## Problems

There are very considerable gaps in our knowledge and understanding of these Mesolithic sites in the Fenland. First, the known distribution of sites is certainly seriously incomplete, with vast areas of the landscapes dating from *c* 6500 to *c* 4800 BC buried beneath silts and peats. Probably hundreds of sites remain hidden, of which some will emerge each year as the inexorable shrinkage and erosion of the peats continue, and as the

sandy ridges and hillocks begin to protrude. There would be much to gain from continued field survey of the peats, although perhaps less intensive than that conducted by the Fenland Project, in order to continue to augment the archaeological record of the Mesolithic Fenland. However, those landscapes submerged under silt will have less chance to emerge and will probably remain flattened and hidden for a very long time, if not forever. The global rise in sea level will in due course remove these low-lying sites from the land-based record.

Second, the Fenland during the Mesolithic period was not at rest. Already by *c* 6850 BC there were changes in the land, as the influence of rising sea levels began to be felt, at first barely perceptibly but later very dramatically. Marine inundation drowned the lowest reaches of rivers, and the influence of this caused back-up of upstream freshwater leading to overflow, still water conditions, and the formation of peat. Such conditions inland would probably have led to improvements in the quality of the environment for hunter-gatherers, in some opening up of the landscape and the encouragement of more varieties of plants and animals. It would have been a slow process, but its effects would have been significant in the longer term. There is some evidence that Mesolithic groups deliberately opened up the woodland by fire or felling in the Fenland, and data from elsewhere suggest that the practice may have been widespread in the Fenland. The surviving traces are likely to be sparse, and only good fortune will enable us to find and identify the evidence through pollen analysis or macroscopic remains. Dating and the evidence of environmental change, created by climatic and geological alterations, suggest that the Mesolithic groups identified by the Fenland Project will not have existed either as one contemporaneous population or in one uniform landscape. Some of the groups will have operated in a dryland wooded landscape dominated by birch, pine, or lime, and with adjacent streams or ponds, living on fen edge, ridges, or hillocks beside or within the undulating Fenland basin surface. Others will have lived during later times when the effects of marine waters were beginning to be felt all over the basin. Yet others, later still, probably adapted their existence to full wetland conditions, in an environment far richer than anything seen before. So the distribution of Mesolithic sites, as shown on Figure 15, is both incomplete and multi-period. This need not upset the general pattern of occupation, which is clearly defined, but it must defer consideration of interrelationships until such time as more refined analyses of the lithic component is possible. The trends towards closer identification of site locations are clearly seen, and that is a positive improvement over our previous very sparse information.

Third, what do these sites mean? Were they permanent settlements, where hunter-gatherers built their shelters and planned their year-long activities? Or were they seasonal settlements, where the groups came at predetermined times each year, to work and exploit the resources then in season or appropriate? Were they temporary, unplanned occupations, marking places where for one visit a group, or an individual, camped and worked for a short time?

Were they perhaps kill sites, where game (mammals, fowl, fish) was captured and despatched; or butchery sites, where bodies were prepared for transport or division; or cooking sites, where obvious enjoyment was had by all; or disposal sites, where the refuse of a gathering was discarded; or industrial sites, where flint nodules were flaked; or plant processing sites, where gathered material was cut and made ready for transport or use; or meeting places, where different groups gathered to exchange pleasantries, equipment, humans, knowledge, or to settle quarrels? All of these are possible explanations for the presence of lithics, and for the presumed previous presence of organic materials in the form of baskets, rope, wooden tools, and equipment. One well-preserved Mesolithic site with abundant organics would help explain a few things. Without these, we are left with a residue that may be diagnostic but is nonetheless restricted in its potential.

Records from other areas of the world suggest that stone tools mark particular economic levels of raw materials and subsistence, while organic equipment can more clearly define cultural and aspirational levels. This is an argument that will not be pursued here. We are not yet in a position to decide if the sites represent (1) an instant yield system, in which communities moved across the land as and when harvests of plants and animals became ripe and accessible, and there was little interest in ownership of land, or (2) a delayed yield system, where people carried out a more fixed regime involving less mobility, more planning and preparatory work, perhaps storage of abundant harvests, and a greater interest in territoriality, or (3) a combination and merging of the two. Be that as it may, the Fenland Mesolithic sites demonstrate a presence of hunter-gatherer groups over a long period and represent occupations under different environmental conditions. They thus may indicate a variety of reasons for their presence in and around the Fenland, and may be only one element in a multi-component activity involving the fen edge, valleys, and upslopes (French 1988). This would help to explain the consistent lack of observable features on those sites recently excavated: a temporary transitory occupation might well have required no substantial structures, no pits, no deeply-driven stakes, but the absence of hearth scatters is more of a puzzle.

## Subsistence

We have very little evidence for the subsistence practices carried out by rivers and streams, on upslopes, and at the basin edge. The catchments, theoretically perhaps about 10km in radius (a two-hour walk), of the base or temporary camps are not yet defined, and it hardly seems necessary to mark the detailed maps such as we have from the eastern Fenland. It is probable that river valleys and the fen edge were preferred locations, both for economic reasons and for greater ease in travel.

Of the animals available to the hunter-gatherer groups we can only suggest that deer, elk, aurochs, and horse provided major meat and hide sources, with furs of beaver, wolf, fox, and other creatures perhaps favoured for warmth on bodies or ground. The dog, first animal to be domesticated, may have helped in the hunt. At Shouldham in Norfolk, investigations on a lithic site, perhaps of the later Mesolithic or early Neolithic, recovered remains of *Bos primigenius* and pig. Foraging in the woodlands and along the streams for edible nuts, roots, seeds, and berries would also have yielded rush, grasses, and reeds for rope, baskets, and maybe thatch for windbreaks, lean-tos, or wood-framed tents, and skins may have been used for coverings. Wood was probably the main material for tools and other equipment: bow and arrowshaft, digging stick, paddle for dugout or raft, club and axe handle, short stabbing stick or longer throwing spear, scoop, and short pointed stick would have made up the major pieces in a well-furnished kit, and from all of this only the lithic elements have survived. Of antler and bone tools from the Fenland we know little, but mattocks, hammers, and points were probably made from these materials. Nets for fishing and fowling, of twisted bark and plant fibres, have not survived, nor have wooden traps for fish and mammals. The appearance of the humans themselves, in terms of clothing and body ornament and decoration, is unknown to us, as are the social groupings that emerged and fluctuated through the millennia of hunter-gatherers. The population of the Fenland is likely to have been small, but it was not an inhospitable place. There is much still to learn of this earliest Fenland occupation, and much to trace about the survival of the wild tradition into the recent past – the origin and survival of the 'fen slodger'. We will meet him again in chapter 10.

*Fig 20 'The arrival of the Neolithic' (drawing by Geir Helgen)*

But what is interesting about even our sparse lithic evidence is its distribution in relation to the first real settlers, those who came and took the land and managed it to their purpose – the forest farmers and their successors. Many sites where Mesolithic hunter-gatherers camped or stayed for short periods were also occupied by people who practised a different tradition of flintwork, of Neolithic character. This asks the question about the relationship between these two groups, if indeed they were separate groups (Fig 20), so apparently diverse in their approach and in their effect on the landscape. This relationship will be discussed in the next chapter.

# 4 Foraging and farming

In this chapter we discuss the results of the Fenland Project survey in the landscapes of the fourth and third millennia BC. This is nominally the Neolithic, but in the Fenland the traditional Neolithic pursuits (crop cultivation, pasturing of domestic animals, pottery and ground stone tool production, etc) were probably much reduced, at least in the initial stages, and it is better to think in terms of a mixture of descriptions. We will try to make the distinction here between the first people who adopted and established farming practices and their successors, who consolidated their hold on the land but who had to contend with dramatic environmental change.

## The landscape

From *c* 5400 BC the average crustal subsidence of the eastern edge of England has been just under 1m per 1000 years, ie 100mm per 100 years (not very much in bald terms). Yet over a long period, measured in centuries, the effects have been startling and immensely significant to the occupants not only of those areas adjacent to the North Sea shoreline but also well inland. The basin of the Fenland was vulnerable both to eustatic sea level rise and to the effects of subsidence, as much of it lay at or near the contemporary sea level. We have seen in chapter 3 that marine flooding had just begun to affect the Fenland during the Mesolithic period, and that freshwater back-up had initiated the formation of peat in the deeper river channels and low floodplains. By *c* 4500 BC a series of tidally-affected environments had been established along the Wash margins of the Fenland, and their effects were being felt well inland. Wide intertidal marshland and tidal mud flats along the Wash would have absorbed most of the energy of storm surges, but flooding of rivers and creeks by spring tides and other high waters would have brought marine sediments into the systems. The clays, often called 'Fen Clay'(see chapter 2), were densely channelled by creeks, and to landward the swollen streams supplied pools on low and flat landforms which supported reed-swamp vegetation and the formation of peat. The period from *c* 4250–3200 BC saw the establishment of the first extensively-preserved marine-influenced clastic sediments in landward Fenland areas; previous episodes had mainly affected only the deeper river channels although much of these earlier deposits lies hidden. The whole range of Fenland marine and brackish sediments represents a gradual filling up of the various embayments, but another factor prevented the penetration of some areas such as the south-eastern basin by marine deposits: the development of thick beds of freshwater peat could and did hinder subsequent marine advances. From *c* 3200–2800 BC a reduced influence from the sea has been recorded in the south-eastern Fenland and freshwater peat formation was extensive.

A brief glance at some of the major geographical zones of the Fenland will demonstrate the complexity and variation of the influence of the sea in the centuries from *c* 5300 BC. In the south-east, in the valleys of the Great Ouse and its tributaries, the evidence of marine-based deposits becomes noticeable from *c* 4800 BC, with more substantial clay deposits laid down from *c* 2500 BC for at least 500 years. So the general picture here will be of a landward advance of marine and fen environments during the Neolithic period. However, the rate at which the valleys and flatlands were inundated is unknown; perhaps it was a uniform and gradual creeping in of the floodwaters or perhaps it was more abrupt and interrupted, in surges interspersed by periods of stability. The effects on the environment were very significant, at whatever rate the inundation occurred.

A reconstruction of a fen edge environment during the period, and indeed during some later periods, is given in Figure 12 (Silvester 1991, 84). This shows five main elements in the landscape, all of which could be and probably were exploited during the Neolithic period. They are:

1 the seawaters and mudflats – fish, wildfowl, mud life, ie shellfish
2 the saltmarsh – wildfowl, salt, pasture, plant foods
3 the reedswamp and sedge fen – wildfowl, reed, animals, peat
4 the fen carr – alder and willow, animals
5 the woodland and upslope dryland – oak, elm, and lime timber, hazel coppice, clearances and cultivated areas, animals

All these zones could be exploited from positions on the fen edge, inland of the wet grounds and natural drainage channels but near enough to the rich environments of the lower reaches. The margin between the wet and the dry will have altered over time and so it may be that only during periods of stability, with little landward creep of the marine-influenced deposits, was there long-term settlement on the fen edge. It was a 'moving frontier' during the Mesolithic and earlier Neolithic periods. Such early occupation, if perched at the contemporary basin edges, is likely to be buried by the continuing advance, and later advances, of the water-based sediments.

In other areas of the Fenland, marine-based deposits did not extend into the catchments. Instead, the valleys initated peat formation and deeper channels became clogged with sediment. The south-central and south-western areas today have extensive roddon systems which demonstrate this episode of rising freshwater and the gradual drowning of the lowest lands.

But there were wide expanses of dryland still available in the earlier Neolithic. In the west, in the valley and tributaries of the Welland, the effects of the marine-based deposits were felt by 5300 BC and peat formation was rapid. Across the Fenland, in the valley of the Nar, substantial valley peats formed by *c* 3200 BC just as they did in the northern Fenland, although here the major effects of the marine-based sediments were felt much later. At Lade Bank, a date of 3300–2900 BC marks the onset of peat, which initiated the drowning of lime woodland and the development of fen woodland and then reedswamp in the region. Much of the earliest deposit is buried by the succeeding inorganic sediments.

## Native woodlands

The pollen preserved in the peats of this period, from *c* 4500 to *c* 2000 BC, shows how the established native woodlands were affected by natural change, by humans, and by other factors (Waller forthcoming). Although each sector of the Fenland had idiosyncratic vegetational developments, dependent upon local terrain, drainage, the extent of marine influence, and the formation of bogs, it may be useful to give an overview here; this will allow us to see the effects of human interference in local terms when we look at survey evidence.

The widespread birch woodland of early Flandrian times had been replaced by pine-dominated spreads, and until the sixth millennium BC pine probably held out against the increasingly competitive elm, oak, and lime which were colonising the slopes and upland edges of the Fenland and creeping into the basin itself. Pine probably survived in some quantities in the valley floors until *c* 2800 BC and even later still on small patches of dry bog. But from the seventh or sixth millennium BC a number of other trees began to overrun the Fenland, forming dense woodlands in all but the inhospitable areas of marine clay, peat bogs, and river channels.

Lime was one of the major trees of this 'climax-woodland', and it was probably much more widespread than its pollen indicates. There are a number of diagrams that show the presence of lime bordering the Fenland from before *c* 6500 BC, and it was still abundant by *c* 3000 BC, thereafter declining. At Feltwell on the east, Bourne Fen on the west, Butterbump in the north, and Haddenham in the south, lime is recorded as one of the important trees in the undisturbed forests around and inside the basin, and it probably was a dominant tree before oak assumed that position. Lime appears to decline from *c* 4000 BC probably as a result of human interference. Clearance of fertile land for cultivation was one major factor in this, but lime was also valued for its timber, for the bast fibre that it yielded, and for the fodder it provided in its leaves. The eventual decline of lime was also due to rising watertables.

Another tree of the dry woodland was elm, which is recorded in a few pollen diagrams from the seventh millennium BC and is well represented at a number of sites in the southern Fenland in the fifth millennium BC, from Shippea Hill, Welney Washes, and the Ouse Haddenham. The decline of elm in southern Britain in the late fifth and early fourth millennia BC has for a long time been considered a reflection of human impact on the native woodland, with trees being felled for clearances and leaves gathered for fodder. Elm is a tree which prefers rich soils and these soils are likely to be the first to be prepared for cultivation. In some cases, however, the abrupt decline of elm was probably due to elm disease, the beetle vector being *Scolytus scolytus*. It is likely that a combination of the elm pathogen and general forest clearance caused the rapid decline of the elm, with the latter explanation more plausible where other major trees also declined at the same time, and the former probably responsible where only the elm declined and herbaceous plants increased. From the sites noted above, only Ouse Haddenham shows evidence of major woodland clearance of elm, lime, and oak at *c* 4200 BC; at the other sites there is only very slender evidence of any decline of the elm and traces of early agriculture are sparse.

Oak was another tree dominant in the Fenland forests, probably just after the elm climax. It was an upland tree, both in the virgin forests and also rapidly colonising secondary woodland. But oak also grew well in margin lands and in the fen itself, and could overtake other trees in a fen carr if drier conditions prevailed. The famous bog oaks of the Fenland were mostly rooted in the pre-Flandrian clays, flourishing in damp conditions. Some bog oaks are not oak, for the term covers pine, alder, and other trees, not all rooted at the same level. Oak was probably the tree most favoured for buildings, since it splits easily into long-lasting planks, beams, and stakes.

Of the other Fenland trees, ash was a component of the woodlands from early times, growing in moist soils and channel sides. It, like lime, is probably under-represented in pollen diagrams owing to pollen dispersal restrictions. Beech is attested in the fifth millennium BC and, like yew, was a dryland fen edge tree. Alder, growing in wet and waterlogged conditions from the seventh millennium BC, replaced oak and lime where conditions prevented regeneration of the dry-preferring trees; alder was a dominant tree at Ouse Haddenham from the seventh to fourth millennia BC. Hazel is a shade-tolerant tree, unlike birch, and could colonise the fen edges as well as occupy the understorey upland forests. It grew alongside lime and ash at Ouse Haddenham, and during the elm decline at Holme Fen and other places it flourished well when the forest cover was reduced and light and air could penetrate to the forest base. Finally, the ubiquitous willow, in a number of varieties, grew in many wetland basins of the Fenland and was doubtless a ready source of whips for baskets, panels, and cordage. All these trees had their uses: ash for handles and axe-hafts, yew for bows, hazel for coppiced rods for hurdles, others for building materials, and most for firewood.

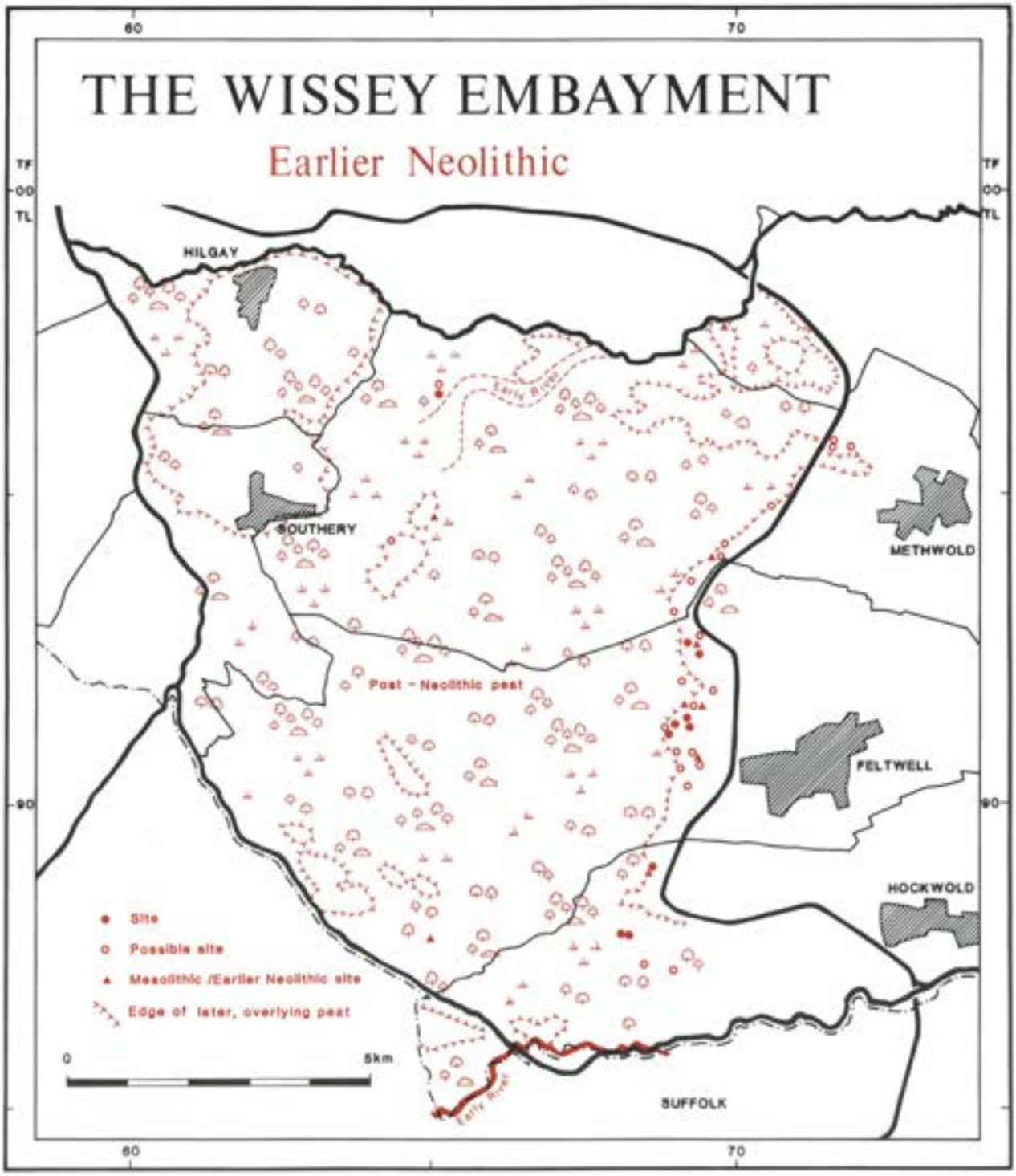



*Fig 21 Mesolithic and earlier Neolithic sites on the edge of the basin in the south-eastern Fenland (from Silvester 1991)*

So the landscape of the Fenland during the fifth, fourth, and early third millennia BC was a composite of dryland forests, fen edge slopes also clothed with trees, and basins partly wooded, partly wetland, partly clogged with water-laid sediments, either marine-based or of upland freshwater origin (Fig 21). With time, conditions deteriorated as some woodland was overrun by flooding and waterlogging, and fen conditions became more widespread. Rivers overflowed their banks, peat began to form more extensively, incursions of the sea deposited vast spreads of silt inland of the Wash. Woodland began to be cleared by human groups for small-scale cultivation and for grazing for domestic animals. The Fenland began to be 'settled' by groups intent on exploiting the fertile land.

## Lithics and pottery

The material representative of this period is restricted to inorganic artefacts of stone and pottery, and a few upstanding or buried monuments. The Fenland Project identified particular groups of lithics and these make up the bulk of the finds.

The lithic material representative of Neolithic settlement and activity in the Fenland consists of cores, flakes, blades, retouched 'tools', and a huge quantity of

broken pieces. Their condition, ranging from fresh to severely plough-damaged, reflects, in some cases, the emergence of Neolithic surfaces and in almost all cases the type and degree of cultivation since exposure. Some sites, lying on the light soils of Fenland islands and peninsulas, may have been protected by overlying peat, but many sites on the fen edge have never had that protection and have been subject to erosion and weathering. As a general guide, it is estimated that the 'background noise' or scatter of material recorded during the survey represents perhaps only a quarter of all material collected or noted in the field.

Adherence to the Fenland Project's site definition and working methods (see chapter 1) has without doubt resulted in a loss of potential accuracy and definition in the recording of sites. Without grid-walking identified sites and making time-consuming collections of material, closer definition of extent, density, and character is not possible. Where sites had been occupied over long periods of time, or at several distinct times in the prehistoric past, the resulting mixture of lithic material on the field surfaces compounds the problems. In these circumstances a multi-period designation was made and some note taken as to the dominant element, eg Neolithic with some Mesolithic material. But where culturally diagnostic lithics were rare, which was often the case given the survey collection methods, it was sometimes difficult to ascertain the dominant episode; for the Neolithic in particular, the length of time, some 3000 years of 'Neolithic' activity, could quite clearly tend to obscure chronological refinements (Fig 22; see Healy 1991 and below).

The earlier Neolithic material tends to have a wide range of core forms, with some blade production and soft hammer flaking techniques. There is a small range of special types including scrapers and serrated blades, as well as leaf-shaped arrowheads. Some of the sites recorded with this material have stone axes and bowl pottery of the earlier Neolithic tradition. A number of sites also contain Mesolithic material in the form of blade cores, blades, microliths, truncated pieces, and burins.

The later Neolithic lithic material tends to have cores of multi-platform or discoid form, producing flakes that are broad and squat, with faceted butts, and showing hard hammer flaking techniques. Among the tool types are scrapers, chisel and oblique arrowheads, and serrated blades. This industry is distinguished from Beaker lithics which have a wide range of core types, broad and squat flakes, barbed-and-tanged arrowheads, small round scrapers, and scale-flaked knives, and are associated on rare occasions with Beaker pottery.

The source of Neolithic flint was varied and rather sparse. The floor of the Fenland basin had various glacially-derived till and gravels with flint of poor quality. Sand and gravel ridges here and there in the Fenland also had some flint. On the eastern and southern edge of the basin surface the flint was of uneven quality, including some relatively fresh and some derived from till and gravel. The nearest source of the well-known *in situ* Chalk flint of East Anglia lay about 3km inland of the fen edge, and its Neolithic exploitation supplied a good proportion of the lithic material in the later Neolithic Fenland; prior to that the more local orange till and gravel flint were collected wherever possible. Increased use of the upland source corresponds to extensive peat formation in the basin, which would have made some previously used sources inaccessible.

Flint knapping was carried out on the sites, since all stages of the reduction sequence are represented. It is possible that during the later Neolithic some flint was carried in half-reduced states into the Fenland, since some of the sites show many more non-cortical than partly-cortical flakes; in other words, cores with primary flaking concluded were being transported. An alternative explanation is that very large nodules were carried further afield. In addition, these later Neolithic sites have many more retouched pieces than the earlier Neolithic sites, perhaps reflecting greater emphasis on finished products or blanks produced at the flint source.

This increased frequency of retouched forms in the later Neolithic industries seems to reflect in a rather opaque manner the appearance during the period of a range of particularly well-made artefacts, including arrowheads, discoidal and plano-convex knives, axes, maceheads, and jet ornaments. These objects are considered to be 'prestigious', of special, non-mundane character, and to represent symbols of status or of special significance. Many of these artefacts, well produced on good quality flint and stone, form part of the fenland record, particularly from the south-east of the region.

The production of fine-quality flint from Grimes Graves, about 12km east of the fen edge up the valley of the Little Ouse, is worth a mention here. Mining in the later Neolithic may have produced an estimated 7–9 tonnes of useable flint from each of over 300 deep galleried shafts, and it is logical to expect that some of this reached the fen edge and the basin itself. Some Brandon flint was used. However, there is evidence to suggest that most of the output from Grimes Graves left the site in non-cortical form, ie already flaked. If this flint was considered to be particularly desirable, because of its quality and also because of the effort involved in extraction, then it is possible that the flint was put to special use, in prestige equipment, rather than merely as *ad hoc* tools. Some of the elaborately worked knives and arrowheads from the fen edge are of sound, black flint which could have been mined at Grimes Graves. However, the overall impression of the Fenland lithic material is that of utilitarian artefacts produced 'in-house' from the nearest sources where flint of variable quality was most easily obtained. This variability in raw material, when combined with the deliberate survey policy of rapid field identification of lithics, resulted in rather generalised attributions being given to site definitions – 'Neolithic' in some cases, sometimes 'late Neolithic/early Bronze Age'. Hence the survey results presented here do not easily distinguish between early Neolithic and a late Neolithic presence except in certain areas, notably the eastern Fenland.

Pottery of Neolithic character from the survey generally consists of dark-coloured sherds difficult to see in the field (Fig 23). The rapid weathering of exposed surfaces means that sherds only survive for a season or two before disintegration (eg Healy 1991, 131). Earlier Neolithic bowl fragments seem to be more robust than later Neolithic wares; the latter are often buff in colour and can be hard to see against sandy soils. As the sherds are almost always small and abraded, precise identification is difficult. A sample of 390 sherds from the Wissey embayment contained only four sherds identifiable as of a particular Neolithic tradition, and 70 of distinct later tradition, leaving over 300 less well defined (but over half of these were bowl fragments).

Neolithic pottery of Grimston tradition seems to date from *c* 4000 BC and continue until *c* 3000 BC (Herne 1988). Fenland sites with the ware include Padholme Road, Fengate (Pryor 1974), Etton Woodgate, Maxey (Pryor, French, and Taylor 1985), and Peacock's Farm, Shippea Hill (Clark and Godwin 1962). Mildenhall ware, with decorated bowls, was established by the early fourth millennium BC and survived until *c* 3300 BC or later (Healy 1988). The Hurst Fen, Mildenhall settlement is the type site (Clark *et al* 1960), and it has

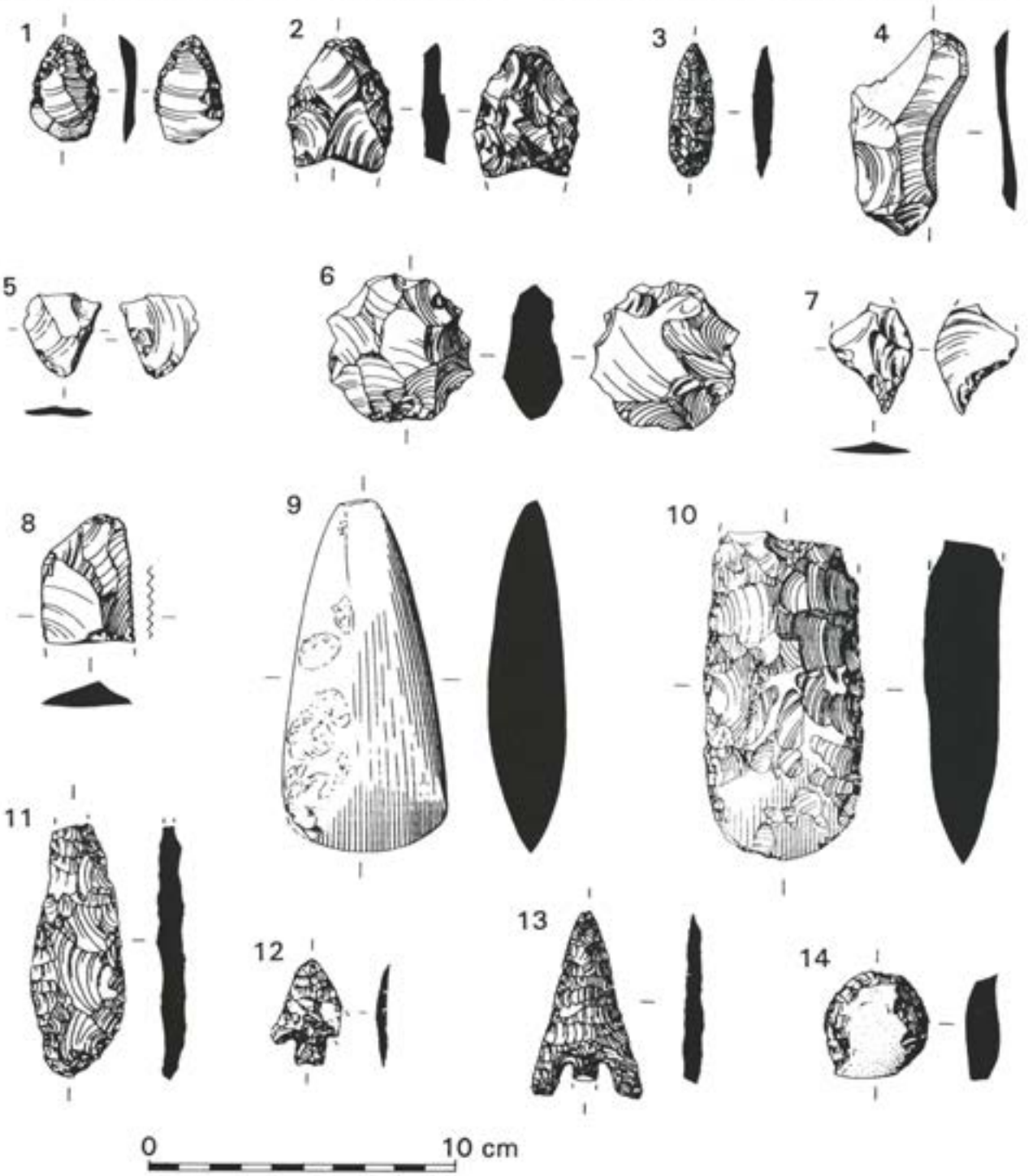



*Fig 22 Lithic material from the survey along the Norfolk fen edge: 1–3 earlier Neolithic; 4–8 later Neolithic; 9–10 Neolithic axes; 11–14 Beaker (from Healy 1991)*

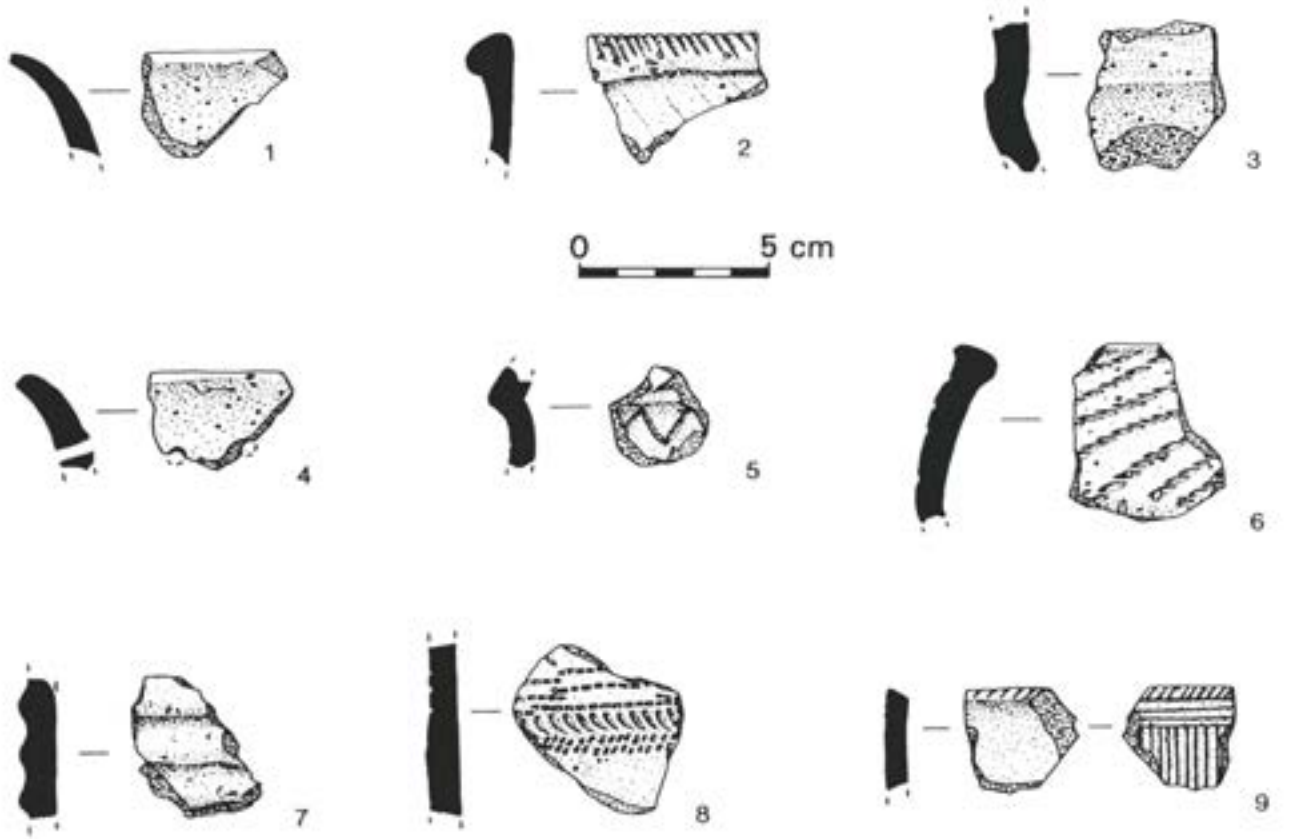



*Fig 23 Potsherds from the survey along the Norfolk fen edge: 1 Grimston ware; 2 Mildenhall; 3–4 Bowl; 5–6 Peterborough; 7 Grooved; 8–9 Beaker (from Healy 1991)*

also been found in the long barrow at Haddenham (Hodder and Shand 1988; and see below), and at the enclosures of Great Wilbraham and Etton (Kinnes 1979; 1985).

The later Neolithic pottery of Peterborough ware tradition appears before the middle of the third millennium BC, and some local styles occur in the late recutting of ditches at the Haddenham enclosure (Evans 1988). Grooved ware is dated from the mid third millennium to the early second millennium BC (Healy *et al* 1993); it was found in the ditched enclosures at Fengate (Pryor 1978) but is generally rare in the southern fens. Traces occurred at Plantation Farm and Decoy Farm, Shippea Hill (Wainwright and Longworth 1971; Clark 1933); concentrations of Grooved ware are known inland in Norfolk and Suffolk (Healy *et al* 1993).

## Distributions

The distribution of lithic and other material of Neolithic character is shown on an environmental map of conditions *c* 2850–2000 BC (Fig 24). As stated above, a large number of lithic sites identified in the survey are not distinguished in greater detail than 'Neolithic', or placed in the later Neolithic/early Bronze Age. All the Neolithic sites have been placed on the third millennium BC map, but the text and smaller maps will distinguish certain embayments for special comment. It is important to note that the distribution of sites is incomplete; in certain areas more sites still lie submerged by peat or clay, particularly in parts of Lincolnshire. Sites beneath peat will emerge in time, but those under clay are likely to remain hidden or be so flattened as to be mostly unrecognisable, although their lithic component will survive. The sealing qualities of clay are severe.

In the western Fenland, from Stickney in the north to Ramsey in the south, there is relatively little evidence for intensive Neolithic settlement directly on or near the fen edge (Lane 1993; Hayes and Lane 1992; Hall 1992). Although much of the contemporary landscape is masked, parts of it have emerged or are otherwise visible in sections here and there. Between the ancient valley systems of the Welland and Nene, a little Neolithic occupation has been identified by the survey. Nothing much came from Borough Fen or Eye (= island), and only a couple of sites are known from Thorney where most of the Neolithic fen is covered (Hall 1987). Near Whittlesey, the peat fen dominated all but the two islands of Whittlesey (8m OD) and Eastrea (6m OD). The Nene flowed along the south of these in a deep channel. Most of the Neolithic landscape is hidden or quarried away, but from aerial work as well as environmental studies the dendritic roddon patterns are clear, and Neolithic settlement had to be confined mostly to the islands.

Further south the scatter of sites begins to make a pattern: the Ramsey peninsula in the south-west shows sites clinging to the fen edge, and the ancient river courses streaming out around both sides of the peninsula.

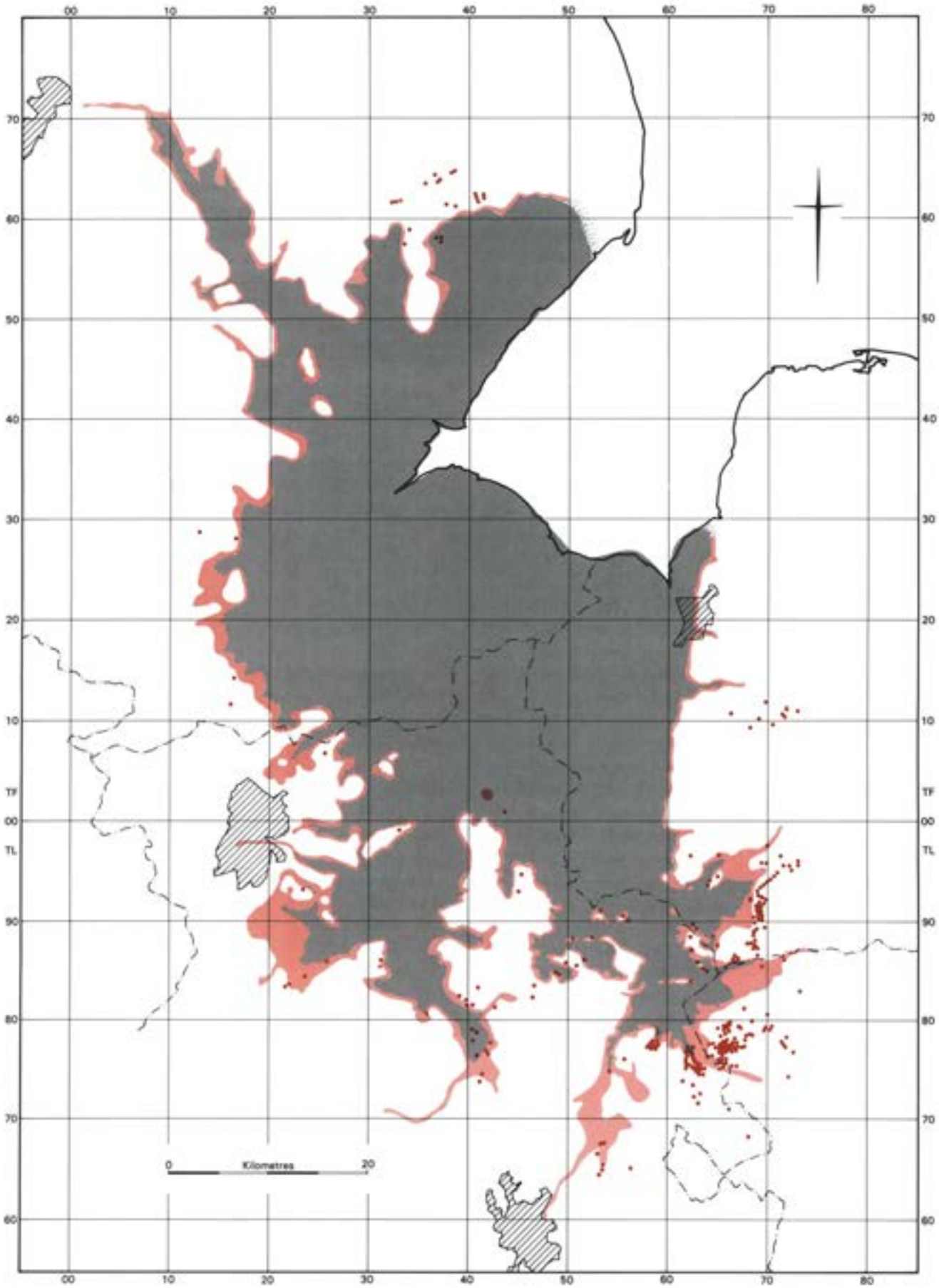



*Fig 24 The Fenland, c 2850–2000 BC, showing the widespread distribution of silts (grey stipple), the pockets of peat (red stipple) along the margins and in the embayments, some of the ancient river and stream courses of the earlier Neolithic, and the distribution of Neolithic material recovered in the survey; the dense concentration of lithics in the south-eastern Fenland provides a contrast to the much more slender traces of activity in the north and west; note that this map represents the environmental conditions of the later Neolithic period; the earlier period had far less silt spread and peat formations (see Fig 21 for an example)*

The central southern lands of Chatteris-March-Manea, once connected to the Isle of Ely, were fragmented as peat fen developed, the tongues of streams and rivers, now silt-filled roddons, poking back (Hall 1992). Occupation in this environment, as might be expected, seems to have been sparse. Across the peat fen, however, and beside the ancient course of an extinct Great Ouse channel, are a great number of sites at Somersham, Sutton, Wardy, Little Downham, and Pymore (Hall forthcoming), some of which are discussed below. They represent settlement across a divide, marked by a gap between the Chatteris land and Mepal, from where streams emanated in opposite directions; the north-eastern flow of one is indicated only in part as its major part is masked by clay. Other sites lie within the catchment south of Welney.

In the land between the Lark and Cam–Great Ouse, and further south upriver of the Cam, are further concentrations of sites which must have been focused on the ancient river courses. The Isleham complex, stretching from Fordham northwards through the fen and across towards Stuntney, is one of the major Fenland Neolithic occupations exposed by the survey (Hall forthcoming). To the north, a line of sites following the fen edge from Shippea Hill to Brandon Bank lay north of the old Little Ouse but are now south of the modern stream course. From Shippea Hill northwards all the way to Methwold is another extraordinary concentration of sites running along the fen edge in a more direct skirtland approach than the Mesolithic occupations show (Martin in prep a; Silvester 1991). These patterns will be discussed below. Southery island in the fen was sparsely occupied. Beyond, over the upland country with its woodland, the valley of the Nar was also settled (Silvester 1988a).

These patterns may allow some predictions about the Neolithic sites that lie submerged by peat or clay. Those upstream, in the south-west, may be expected to emerge. Those in the south-east, already evident, will be further revealed by peat loss. In the west, the traces are thin and deteriorating conditions may have discouraged close fen edge settlement. To the north that pattern may be seen already, but in both these areas more work is demanded to enlarge the opinions. What we lack almost totally are indications of the Neolithic response to major river courses, in the middle reaches of the ancient streams; perhaps there was no response, and the fen edges were the favoured areas.

## Farmers, ranchers, and foragers

A 'profound obscurity'; this expression might be taken as an indication of our lack of knowledge about the early inhabitants of the Fenland, but in fact it refers to the forests that they encountered. The full quotation is given below. How would farming and ranching communities approach the barely-touched lands of the Fenland? We know that hunter-gatherers had been present for centuries, exploiting the natural and regenerative harvests of wild plants and animals of the river valleys, the few patches of wetland fen, and the upslopes, in a land mostly covered by forests. The population is likely to have been small. From the early fourth millennium BC it is certain that farmers were present in the Fenland, and efforts were being made to work the land and make it yield to a new technology. It was to become an active involvement, not a passive one, although the environmental data from a number of Neolithic sites indicate that foraging, not widespread clearance, was probably the main activity at first. The groups may well have included part of the indigenous population, but not all (see below).

The tools and techniques necessary for the initiation and establishment of farming in the Fenland were stone axes, digging sticks, fire, grass- or reed-cutting implements, mallets, and wedges. Most of these will leave little trace in the record, other than the axes (Fig 22), the flint knives or blades, and perhaps an environmental indication of burning. The soils to be cultivated or cleared for pasture were light in texture, easier to work and probably more easily cleared of trees than heavier soils. The selection of the soils was probably made on the basis of the tree species growing, as they give good indications of soil type and fertility. Alder, elm, ash, lime, and oak woodlands grew on good farming soils, pine woodlands less so. The age of the trees was also important, for the yield of mature timber. Proximity to water was important and rather boggy ground with scrub vegetation was not excluded as this could be turned into wet meadow for grazing when it was cleared. Agriculture is not an instant yielder, although cattle ranching can be more productive sooner; it was necessary that alternative food supplies were available, so the presence of wild plants and animals was another essential. All these requirements were met in the Fenland environments – good quality trees and soil, water, potential meadowland, and wild resources – and some were already being exploited by those whose lithic remains have been discussed in chapter 3.

It is surely significant that a large number of sites on sand ridges and gravel spreads and terraces contain both Mesolithic and Neolithic lithic assemblages, with no demonstrable stratigraphical separation. Where peat formation occurred at early times there may be opportunities to recover lithic and other material in some stratified relationship, downslope from the ridge and terrace soils. The elucidation of this relationship is important, in order to help resolve the question of intrusion versus adoption. That farming practices (both agriculture and pastoralism) were introduced into the Fenland is not the question; it is whether the Mesolithic groups already present were the prime movers in this, acquiring and adapting the new concepts, or whether they remained largely outside the innovations and witnessed the arrival of new groups of settlers. The implications for them, whichever way, were important. If the two groups were wholly distinct, contact between them must be inferred from the sites, and the potential for abrasive behaviour existed. If, on the other hand, farming was a way of life adopted over a long period of

time by the indigenous people, who also maintained their traditional practices, the Fenland was large enough and varied enough to sustain both elements of activity. Whatever the mechanism, domesticated animals were introduced, and cereal cultivation too, to flourish alongside the continuing yield of the Fenland forests and streams. The amplitude of the novel elements in the overall pattern of existence is likely to have been small at first, and very small in most areas. The indications of cereal cultivation are very slight, certainly in the earlier phases of the Neolithic period, and it is likely that livestock management was the major concern of those who made the decision to adopt a form of economy that we call 'Neolithic'. By definition, some innovating intruders must have been present even if only as a small proportion of the population (Fig 20), and even if wholly unthreatening and assimilable.

The most recent archaeological thought on this matter tends to favour the flexibility of hunter-gatherers, who would have been most knowledgeable about their lands and best able to adopt and apply new ideas and technologies; this implies local acceptance of a Neolithic way of life, retaining foraging as a prime concern and with no confrontation between an occupying and an intruding group, because they were one and the same. There is no evidence of conflict in the record, but we could hardly expect any such indications to survive. What is not in doubt is that clearance operations, once initiated, were not thereafter totally abandoned; areas may have reverted to woodland or been drowned, but the process over the Fenland was inexorable, and today's landscapes are the ultimate result.

The spread of agriculture and pastoralism into the Fenland was probably very slow and barely perceptible (Coles 1976; Pryor 1989). As the size of the farming groups was small, the areas cleared were also small. Surrounding them was the forest, 'so dense the growth of timber that all beyond the immediate clearing is wrapped in profound obscurity' (Traill 1836). A clearing, still studded with stumps and covered by ash and charred fragments, could be cultivated with digging sticks, poking holes or cutting furrows for seeds carefully planted, not broadcast. Or the cattle could stumble among the timber, grazing on the new shoots, or pigs could root in the earth. The warmed earth and ash would yield a good crop in the first year, but then the yield would decline, owing to fertility loss in the soil but, more significantly, to weed competition, feeble in year one but increasingly fierce in succeeding years. Without manure, a clearance might perform adequately for three or four years, and it would then be abandoned for 15–25 years. Pasture land would have a longer life. It is likely that farming groups would begin to prepare plots well before actual settlement, so advance clearances would be carried out 2–5 years before an anticipated move. Such advance work would take form either as an extension from an existing clearance into the forest (a spur clearance) or as a new isolated clearance surrounded by forest (a spot clearance). Low rises in the Fenland basin would have been attractive for early clearance of the well-drained soils. With a lengthy period of fallow, at least five times that of the period of cultivation, a small community would take in a wide territory in a couple of generations. In the Fenland basin it is likely that somewhat damp natural clearings, or small areas felled by axe or fire, were used for animal grazing even more than for cereal cultivation. Pigs and cattle could cope well in the forest clearings, and would contribute each in their own ways to the maintenance of such clearings. Land sustained by seasonally reliable water would form rich pasture for animals tethered or managed by the watchers of two generations – children or old folk.

By these mechanisms, any unassimilated hunter-gatherers who had the freedom of the whole forest and river valleys would come under increasing pressure. What may have been quite incomprehensible to these folk were fenced areas, plots protected against wild and domestic animals such as deer, cattle, and pigs. Areas of open grazing, particularly wet meadows or fallow fields, would attract wild animals too, and maybe conflicts would emerge over the rights to hunting of both wild and domestic beasts. Such conflicts survived until the nineteenth century AD (see chapter 10).

There were other pressures too. Excessive rain, or heat, or cold, or birds could destroy a crop, and weed competition required work. Autumn- or winter-sown wheat had an advantage over dormant weeds, but spring-sown crops had active competition. When crops failed, or animals failed to survive and reproduce, the forest farmers had to fall back on their second source of food – the wild resources of forest and stream. It is likely that the choice of land for farming depended as much on good hunting and gathering as on good quality soils and wood. Here is where difficulties could arise. A bad season for crops and domesticates probably meant an equally poor yield in the wild. In such times there may have been some problems of coexistence between the farmers and the hunters, where some separation was still maintained. We cannot know the details but we do know the eventual outcome – the decline, absorption, and withdrawal of the hunter-gatherers. No longer would their distinctive microliths and blade technology appear on the sand ridges and riversides of the Fenland. Their technology, all that we have of them, comes to an end and they vanish from the record.

The rate of penetration of the first farmers was probably slow, but over perhaps a generation a group would move 50km or so, leaving behind a number of abandoned clearances and areas of untouched forest. Other groups would continue the process of penetration, clearance, and absorption, but the overall effect on the Fenland would still be very slight. Can this earliest of phases be detected in the record? The lithic scatters of general Neolithic character are rather imprecisely known and it has not been possible to extract particular industries that are defined as 'earliest'. Nor do we think that pollen analysis will often be able to detect a phase of minute clearances set amid a dense and otherwise barely broken forest. Small clearances maintained only

for 1–3 years, failed plots, a year or two of burning underbrush and branches will probably not enter the environmental record in an easily identifiable form. The traces of shelters, fences, storage places, pens, pits, and middens might be found in waterlogged deposits, but otherwise very little will be seen. Nonetheless, through the extensive surveys of the Fenland Project, we now know the type of soils occupied by Neolithic farmers, the preferred geographical positions, and the characteristic lithic material used; those sites where Mesolithic occupation also occurred are likely candidates as the places where people made their clearances, planted their seeds, tended animals, constructed shelters, and exploited the wild resources. Some of these sites are noted below.

The majority of the sites from which Neolithic material was recorded during the survey are probably later in date, belonging to the main developmental phases of the Neolithic; some are later still. Over a span of some 2000 years it is certain that even surface lithic material will show changes and alterations. The suggestion has already been made that the lithic concentrations mostly represent settlements, and where pottery also occurs the case is strengthened. A few earthwork and cropmark sites, and burial mounds, help fill out the picture. But the major change between the forest farmers' existence and that of their successors was environmental. The farmers of the full Neolithic period extended control over the land, felled wider expanses of the forests, exposed more of the virgin soils, enlarged the clearings, began to manage and maintain the hoe plots and scratch ard fields, established grazing meadows, and reduced the territories of wild animals. At the same time they had to cope with the increasing influence of the sea, as sea levels rose relative to the Fenland surfaces in a combination of rising sea and subsiding land. Wider areas of lowland were flooded, bringing silt and clay far inland, backing-up the river outflows, and creating wide expanses of waterlogged lands far inland. Peat fens began to form in new areas, and previously existing fens were enlarged. By the third millennium BC there were extensive areas under clay or peat, and the possibilities for settlement and cultivation became more restricted. The population was still low, and although some clearances are evidenced in pollen diagrams around the Fenland, the wider distribution of Neolithic flint scatters and definable sites, clustered along the fen edges and some river valleys, may not represent a substantial process of domestication of the land itself.

## Settlement

There are various problems associated with 'lithic scatters' which make up the main source of our evidence for the earlier prehistoric periods. Excavation of such scatters has generally yielded little or no trace of structures, including hearths, although the sample excavated is very small. It has already been suggested that these scatters may represent only one element in a mobile form of economy, and so little associated structural evidence might be expected. In addition, the environmental data from several sites suggest that woodland had not been extensively cleared from some of the areas associated with occupation. Yet small-scale clearances would not be identifable in the pollen record, and a short-lived settlement, using only windbreaks, tents, or light shelters, would not have involved deeply-driven posts, deep pits, or quantities of burnt sand or rock. We should not forget the numerous 'potboiler' sites in the spread of prehistoric activity, although most are probably of later date (see p 58). For the moment, we look upon these scatters, some of them of many thousands of flints, as occupation debris and thus representing settlement, both seasonal and more long-lived. Seasonal or temporary occupation might have involved nothing more than the butchery of animals, knapping of flint, or food gathering or its preparation. A traditional view is that more established and structured settlements are likely to have been further inland and upland in some areas, but they mostly remain to be found. It is equally possible that we should not persist in asserting a more structured existence 'elsewhere', but accept that the foci of settlement were here on the Fenland margins, independent of a more stable and ordered home base in a different environment.

### The northern fen

The northern extremes of the Fenland have a scatter of Neolithic sites which probably represent an incidental southern focus of people settled in the Wolds rather than a real centre of activity (Fig 25). The sandstone/limestone uplands and chalk wolds well inland from the fen edge contain virtually all the long barrows from the Wash to the Humber, the nearest to the fen being Skendleby some 10km away (Phillips 1936; Evans and Simpson 1991). Only one substantial earlier Neolithic site, at East Keal, is known from the survey of the northern fen edge (Lane 1993), but a number of smaller flint scatters occur and many stone axes or axe fragments have been found, five from West Keal and three from Stickney. There are probably many more stray finds from the area, only some listed in the official records. Perhaps contemporary with the axes was a settlement at Tattershall Thorpe in the Bain Valley near its junction with the Witham (Bradley and Chowne 1993). A concentration of flints over at least 7.5ha must represent a substantial presence in the Neolithic period. Excavation revealed pits and postholes; some of the pits were cylindrical, while others were more irregular hollows filled with pebbles, potsherds, and other debris. The cylindrical pits contained large pottery sherds, flint knapping debris, and unfinished arrowheads, and deliberate burial seems likely. The pottery was mostly in the early Neolithic round bowl tradition with relationships northward to Yorkshire and also southward to East Anglia. Some pottery was of the later Neolithic. The flint material represents both earlier and later Neolithic types, and microwear studies have identified tools used for meat-cutting, hideworking, and woodworking

from one of the cylindrical pits; other flints were used for bone- or antlerworking and the cutting of cereals and wet vegetable matter. The relationship between this settlement and the lithic scatter sites nearer the Fenland basin at Stickney is not known, but it does point to the constant need to remember that well inland from the fen there will be and are sites that had a part to play in the Neolithic acceptance of the basin as a viable environment in which to live and work.

## The western fen

There are few sites known on the south-western Lincolnshire Fenland but this is due in good part to the limited amount of survey possible in areas submerged by peat or clay (Hayes and Lane 1992; Fig 40). At Dowsby, the evidence for Neolithic activity is limited to three axes which have probably been pulled up from the buried prehistoric land surface (Fig 26). In the Pointon area, axes and axe fragments are also the only indication of Neolithic presence other than some flints on a fen island which are rather undiagnostic. Larger scatters of flint at Pointon may be late Neolithic or Bronze Age; the axe pieces include a jadeite-type and a Group XX implement from Pinchbeck North Fen. It would seem that Neolithic settlement is either totally hidden or did not occur to any substantial degree; as fen edges are visible and searched, the latter view is probably correct. Pinchbeck lies further to the east and most of the ancient land surface is lost, covered by sediments in places and eroded away by former creeks in others. A sand island with abundant lithic and pottery fragments probably represents a Bronze Age settlement, perhaps on a smaller late Neolithic base (see chapter 5); its importance is doubled by the opinion that the site shows occupation well off the fen edge and that part may be waterlogged (Hayes and Lane 1992, 112). South along the fen edge are a few Neolithic scatters of flint, at Market Deeping and elsewhere, along with a few stone axes. There is little from this area of the western fen to suggest much interest in the region during the Neolithic period.

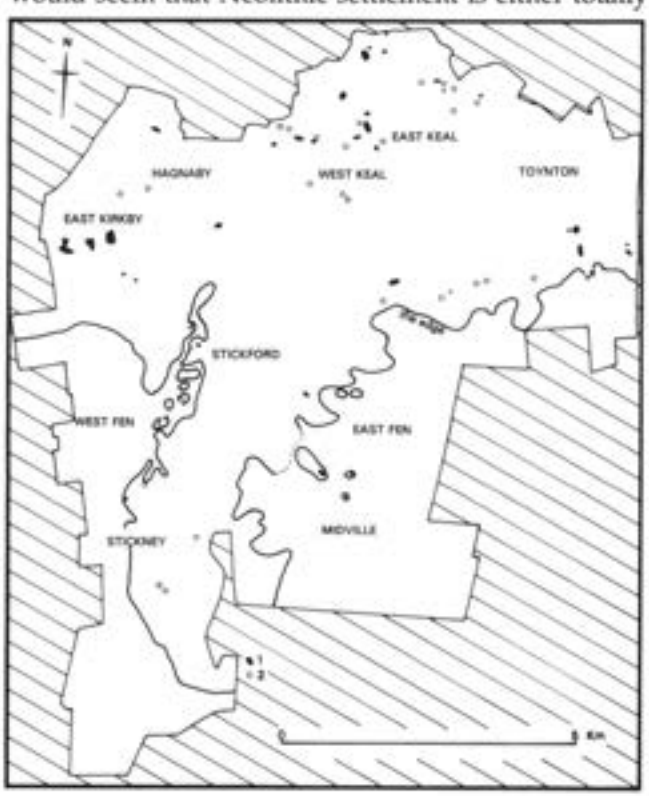



*Fig 25 The northern Fenland around the Stickney ridge before 2000 BC: 1 lithic scatters mostly of late Neolithic/earlier Bronze Age materials; the spreads north of East Keal (at top of the map) are Mesolithic; 2 other finds, such as stone axes; the hatched area is unsurveyed; note 'the edge', an indication of the lower land of East Fen, Midville, and West Fen, off the higher land of the ridge, Stickford, and beyond; there are scatters of debris near the edge , and on low spreads of sand ('islands') off the edge in Midville and West Fen (map based on Lane 1993)*

However, just to the south and on the western edge itself there is complex and intriguing evidence of early Neolithic presence emerging from a massive campaign of archaeological excavation at Maxey and Etton (Pryor 1988; 1989; 1991). This is not the place for a description of the enclosures, alignments, and settlement features in the land between the Welland and Nene; all have been explored and interpreted with skill and persuasion. But it is relevant to point out that the evidence so far assembled points to considerable forest clearances by the late fourth millennium BC and beyond, to an organisation of the land sufficient to permit a lengthy cursus monument to be aligned and constructed, and to the emergence of a social system involving elaborate ceremonies. All of this can be demonstrated. Less easy to show, but equally plausible, is an economic system of both static and mobile elements: cereal cultivation in fixed and protected places, pasturing of animals in seasonal patterns, the gradual extension of cleared patches in the once-dense woodland, and the gathering together of the community at times of important contact and solidarity. One example is the ditched enclosure of Etton near Market Deeping, beside an ancient channel of the Welland.

## Etton

The cropmarked later prehistoric landscape of Maxey lies to the north and west, and the Bronze Age buried barrow fields of Borough Fen and Catswater lie to the east, in the fen. The Etton enclosure ditch had been waterlogged since its digging some 5000 years ago (Pryor and Kinnes 1982; Pryor, French, and Taylor 1985; Pryor 1988). Examination of part of the enclosure in 1985 revealed multiple postholes and pits, interpreted as the remnants of 'desultory small-scale settlement, probably during the flood-free months of the year'. Cereal pollen indicates an arable component in the local economy; among the many bones of cattle were some showing osteoarthritis, perhaps the result of stress due to the use of cattle for traction. In 1986 further excavation in the enclosure revealed numerous small funerary deposits, with pits containing objects such as stone axes, antler, pottery, flints, charred hazelnuts and acorns, and

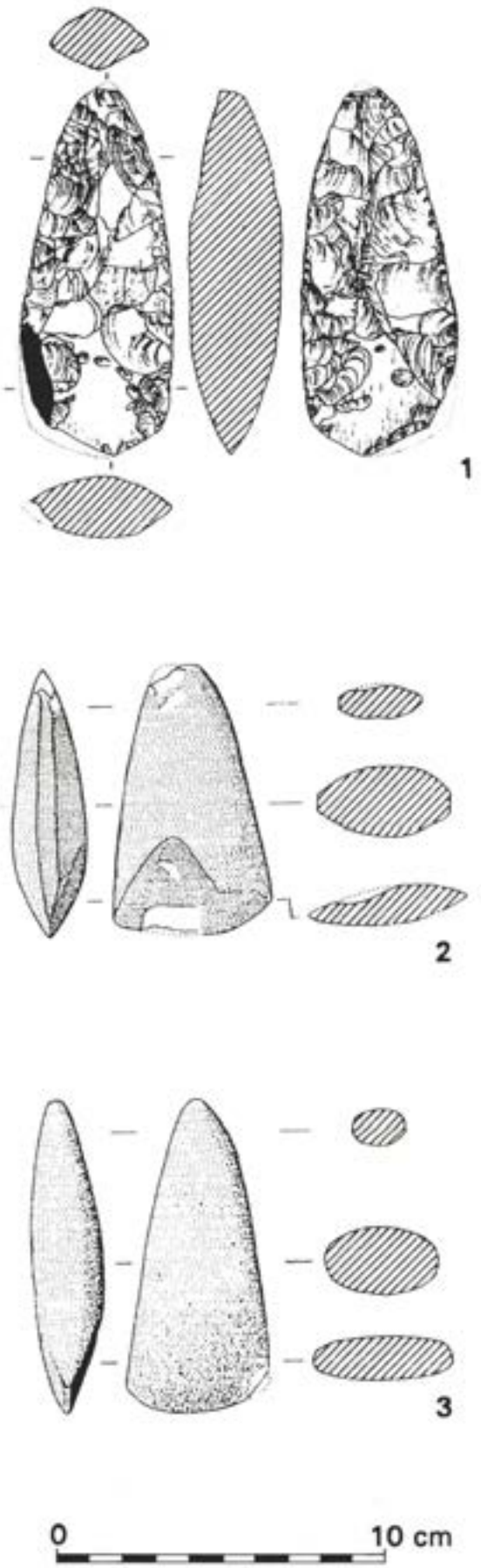



*Fig 26 Flint and stone axes from the western fen edge at 1 Dowsby (flint), 2 Thurlby (Group VI), and 3 Gosberton (jadeite) (from Hayes and Lane 1992)*

a saddle quern. The ditch bottom examined in 1985 contained many willow and hazel rods including coppiced pieces, as well as broken pieces of birch, alder, and poplar. Pottery in the ditch was of Neolithic Mildenhall character, like that from the dryland settlement of Hurst Fen (Clark *et al* 1960). In contrast, the ditch examined in 1986 had been deliberately backfilled after deposition of objects such as quern fragments, antler, flint blades, and human skulls or skull fragments. The site has been interpreted as a dual function enclosure, for episodic funerary purposes on one side and episodic arable and domestic purposes on the other (Pryor 1989), and it may have served the rather small Neolithic populations of the western fen edge and the hinterland as a seasonal focus and perhaps driving force for the fen edge settlements and small farming communities in the immediate area.

Within 100m of the enclosure, but separated from it by a now extinct stream, was a ditched area called Etton Woodgate; limited excavation revealed two ditches set at right angles, containing early Neolithic pottery of a different (possibly earlier) tradition than that from the enclosure (Pryor 1984b). Between the ditches were pits and postholes, with pottery and flint tools. A large pit with an associated hearth was probably used for oak charcoal production, of which about two tonnes were recovered from the excavation; the pottery from this feature was of later Neolithic type, and there was a scrap of 'knotless net fabric', birchbark, and red deer antler. The Maxey cursus monument runs very near both the Etton enclosure and the Woodgate sites, in a complex of monuments spanning perhaps 1000 years or more. All of this indicates widespread clearances and 'owned' land.

Comment has already been made on the relative scarcity of Neolithic settlement evidence on the peninsula of Thorney and Eye. The Whittlesey and Eastrea islands have some indication of Neolithic activity carried out on lands just north of the ancient Nene which flowed strongly on the islands' edge (Hall 1987, 56). A site just at the junction of Eastrea and a small ancient stream yielded lithics and polished stone axes, and other sites on the edge of the larger island are known. These were presumably working the fen and river as well as the dryland behind. This rather scanty evidence for the whole of the western fen edge is without doubt a reflection of the major blanketing of much of the Neolithic surfaces by peat and clay. Only in a few places, where areas are exposed, is some of the Neolithic evidence now revealed. Much more remains to be found, some of it already exposed by peat wastage since the Fenland survey was conducted.

Further south, on the Ramsey peninsula, the Fenland appears to have been sparsely settled in the Neolithic, and those sites identified yielded few flints; however, a local collector (J R Garrood) worked the area for many years and his collection suggests that Neolithic settlement was more extensive than the survey could identify. At Ramsey, the terrain is mostly heavy clay and so little Neolithic material was expected; two sites

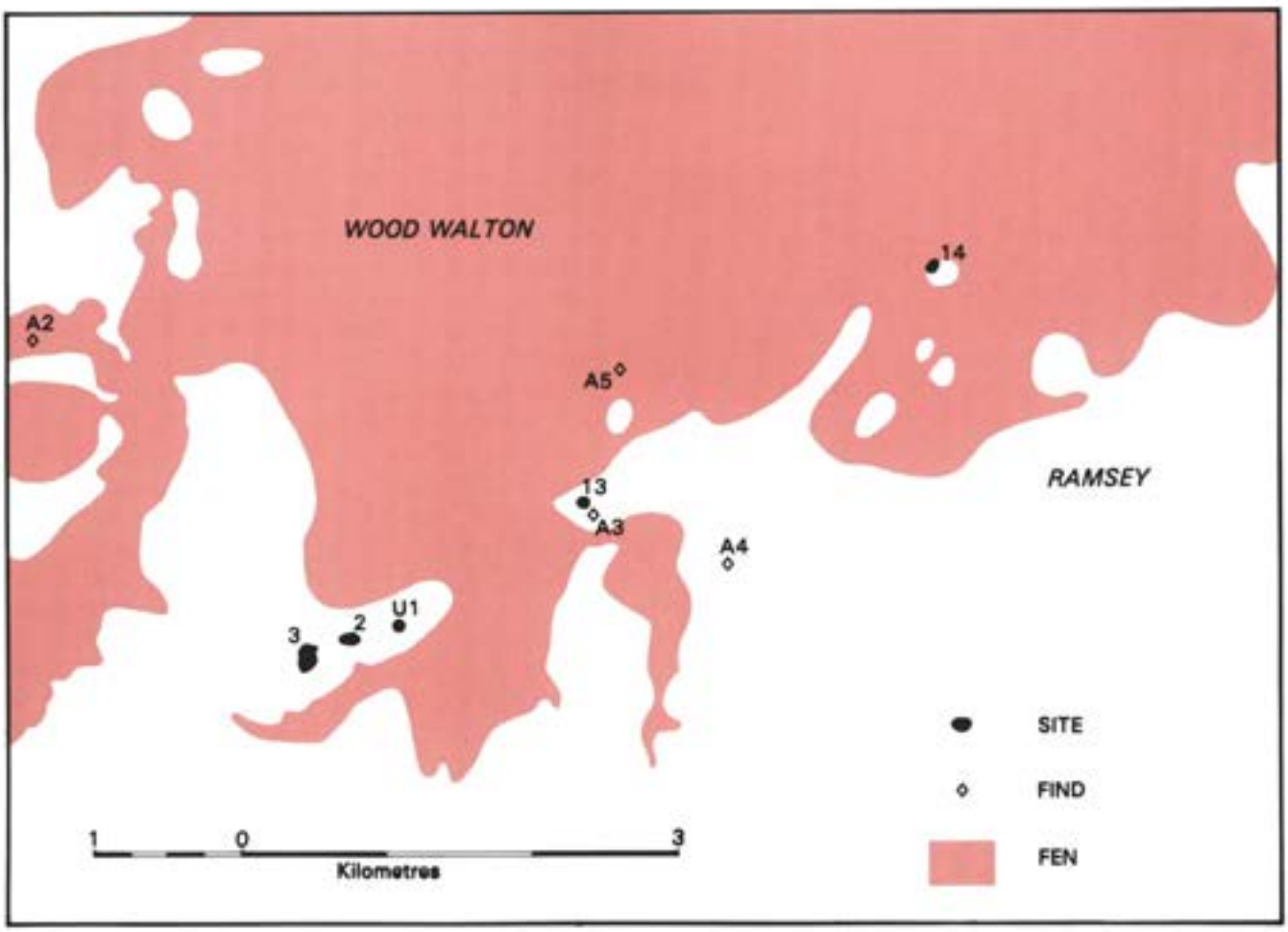



*Fig 27 Map of the Neolithic fen at Ramsey and Wood Walton, showing the positions of lithic scatters on peninsulas and a small gravel island within the dendritic system to the east; the Honey Hill site lies on the narrow peninsula overlooking the fen to the west and across to the other sites on the facing peninsula (based on Hall 1992)*

yielded both Mesolithic and Neolithic artefacts, near the junction of fen and dryland (Hall 1992, 41). Two other sites occur on small gravel outcrops (Fig 27): one of them (Honey Hill) is situated on a low peninsula and thus controls a narrow valley from Upwood; the other, on a very low gravel spread, probably extends beneath the fen deposits. The area has also yielded a scatter of stone axes including a greenstone axe found in 1830.

The lithic scatter at Honey Hill was exposed on a small gravel outcrop, and appeared to be late Mesolithic to early Neolithic in character. Subsequent fieldwalking and small-scale excavation took place, and the sieving of a fraction of the deposits retrieved over 9000 flints, including a Group VI axe, a flint arrowhead, and a plano-convex knife; many flints appear to have been processed on site and burnt flints were abundant. Most of the raw material was from gravel sources, perhaps on the 'hill' itself, and a small proportion came from riverine deposits. Many blades and narrow flakes, scrapers, and retouched flakes suggest activities representing settlement rather than mere flint procurement and processing (Richards 1990; Bradley 1987; Edmonds 1987). The destruction of the old land surface by ploughing, perhaps in prehistoric times, removed all traces of whatever slight structures may have been present (Evans in prep). As the island was probably surrounded by an active wetland, perhaps a marsh, the camp may have been seasonally occupied over many years.

The same block of dryland, but now that part of it facing north at Wood Walton, has yielded a large number of Neolithic finds, many found long ago and now in the Norris Museum at St Ives. Three settlement sites were identified in the Fenland Survey, perhaps already robbed of their diagnostic pieces (Hall 1992, 33). Nonetheless, the presence of fire-cracked stones and other flints, and some pottery, suggests that exposure of these sites has been recent, because pottery does not survive frosting. The sites lie close together at Castlehill Farm on glacial gravels on the top of small promontories jutting into the fen (Fig 27). Their content is varied: one has blade cores, serrated flakes, and a plano-convex knife, as well as a little material of later date; another has Neolithic flints and a few sherds of late Neolithic pottery; the third and smallest site was mostly Mesolithic (U1 on Fig 27). The quantities are not great; one site has a density of 70 flints per hectare, contrasted to the background scatter of only 4–7 in the neighbourhood. The many stone axes from the immediate area collected by Garrood are part of this Neolithic activity, as is the scatter of artefacts from Sawtry, Conington, and other places. It is tempting to see this complex of sites in the Ramsey-Woodwalton area as the output and residue of a single Neolithic unit of settlement, working the peninsula and pentrating the fen wherever possible.

## The southern fen

In the central southern Fenland, the major drylands of March-Manea-Chatteris were occupied by Neolithic settlers; before this time the area, constricted by a huge river system on the west and another (submerged now) on the east, had barely been occupied (Hall 1987, 39; 1992, 74, 84). At March itself, the Gaul Road sites noted in chapter 3 had Neolithic material including arrowheads and an axe fragment, and there are other finds on the March peninsula as well as at Stonea to the east. A number of axes may reflect early clearance activities. The work of private collectors is also attested from Manea where the survey managed to locate some of the sites systematically rifled in past decades; some material resides in Wisbech Museum. Two Neolithic sites are now identified on a wide peninsula of sandy gravel projecting into the fen (Fig 28); one of these, at Bedlam Hill, combines Mesolithic and Neolithic material.

There is little sign of any substantial activity along the western edge of the central region, around Wimblington, but south of Chatteris several sites suggest major settlement at Horsley Fen and Ferry Burrows (Hall 1992, 84). One is a widespread flint scatter with fire-cracked stone and a quernstone axe fragment; another had flints, pottery, and bone on a surface sloping beneath the fen, and thus likely to have hidden waterlogged evidence. A small investigation of the latter site yielded little new evidence other than a small hollow and further flints and pottery; modern ploughing had effectively demolished the site.

On slightly raised sandy gravels another occupation with flints, pottery, and burnt pebbles extends eastward to the edge of an enclosure, revealed by aerial photos as well as by surface indications; it was ditched and part of it survives as an earthwork, the only such earthwork monument known from the entire Fenland. The enclosure is partly overlain by Neolithic settlement scatter. Another ditched enclosure, flattened, lies to the east, and to the south is a small trapezoidal enclosure probably of later date, perhaps Neolithic. A further linear ditch was noted, with traces of side branches, perhaps the remains of paddocks; the date of this feature is not certain, but it may be Neolithic or Bronze Age. There are other lithic scatters in the immediate area, one of them covering 2ha. The complex occupies a southern spur of dryland projecting to the very edge of the fen where streams and a major river, perhaps the ancestral Ouse, flowed northwards. Its southernmost sources formed the western fen edge of a great block of Neolithic dryland which stretched across to the Isle of Ely. There are important Neolithic sites and monuments scattered across this area.

In the west, and adjacent to the river sources at Somersham (Fig 29), the large Mesolithic occupation on the edge of a gravel peninsula was succeeded by a less lithic-intensive Neolithic site higher up, with a greenstone axe included (Hall 1992, 50). Downstream of Sutton there are a number of Neolithic sites on low islands of light soil left by the ancient river Ouse (Hall forthcoming). As much of the old land surface is sealed by marine clay there is good potential for waterlogged remains. Near one site, where Mesolithic material is also known, this old surface is 1.55m below present sea level and sealed by wet peat overlain by clay. On the other side of the river, in effect an extension southward of the Chatteris complex, are pure Neolithic sites, one on the extreme edge of a sandy island yielding flints and pottery. At the western tip of the island is a comparable settlement, from where a Palaeolithic axe was also recovered.

These concentrations and scatters of Neolithic domestic debris imply a lengthy presence in the area, with settlements, established routes, clearances and fields, pasture, and the untamed woodland and fen. A major discovery of the survey which helps confirm this Fenland attachment is site 11 at Sutton, just to the east of the old Ouse channel, and nearly buried by peaty alluvium (see map, Fig 52). Exposed by ploughing, which has just hit the top, the site is a buried long barrow, about 50m long and 21m wide as at present exposed. The mound rises about 1.2m above the old land surface, and has ditches 3.5m wide and 0.8m deep filled with wet peat sealed by marine clay. The axis of the barrow is north-east/south-west, parallel to the barrow at Haddenham noted below. Geophysical survey indicates the presence of a chamber at the north-east end of the mound and the preservation of the barrow is probably even better than that of the Haddenham monument.

## Long barrows and enclosures

The high land at Haddenham is clay and bears no trace of prehistoric activity, but lower down in the fen are several sand and gravel islands and peninsulas (Hall forthcoming). At Foulmire Fen, the prolific Mesolithic site also contained late Neolithic material, on a sandy terrace well sealed by peat; the Neolithic debris included cattle and red deer bones, clusters of nutshells, and possibly a floor of bark. A burnt flint patch represents perhaps a cooking or pottery temper preparing area, and fragments of daub suggest a former structure (Evans and Hodder 1987, 185–6). Across a narrow fen is an island almost surrounded by clay near an old channel of the Ouse. Aerial photos taken in the 1947 floods revealed a mound on the (then submerged) island, but identification as a Neolithic long barrow was only made possible by the Fenland Survey. The mound protruded through the 1.5m thickness of peat and was 49×19m in size. The axis lay north-east/south-west with a broader north-east end. The barrow has been excavated (Hodder and Shand 1988), revealing a wooden mortuary chamber 7×2m, the timber preserved by carbonisation and mineralisation; the floor, roof, and walls were formed of oak planks each up to 0.25m thick, 1.4m wide, and 4m long; the walls were held in place by earthen banks and by uprights, some of which divided the chamber into a vestibule and an inner chamber (Fig 30). A facade 12m long was placed in front of the chamber, with ends curving south-west; a gravel floor

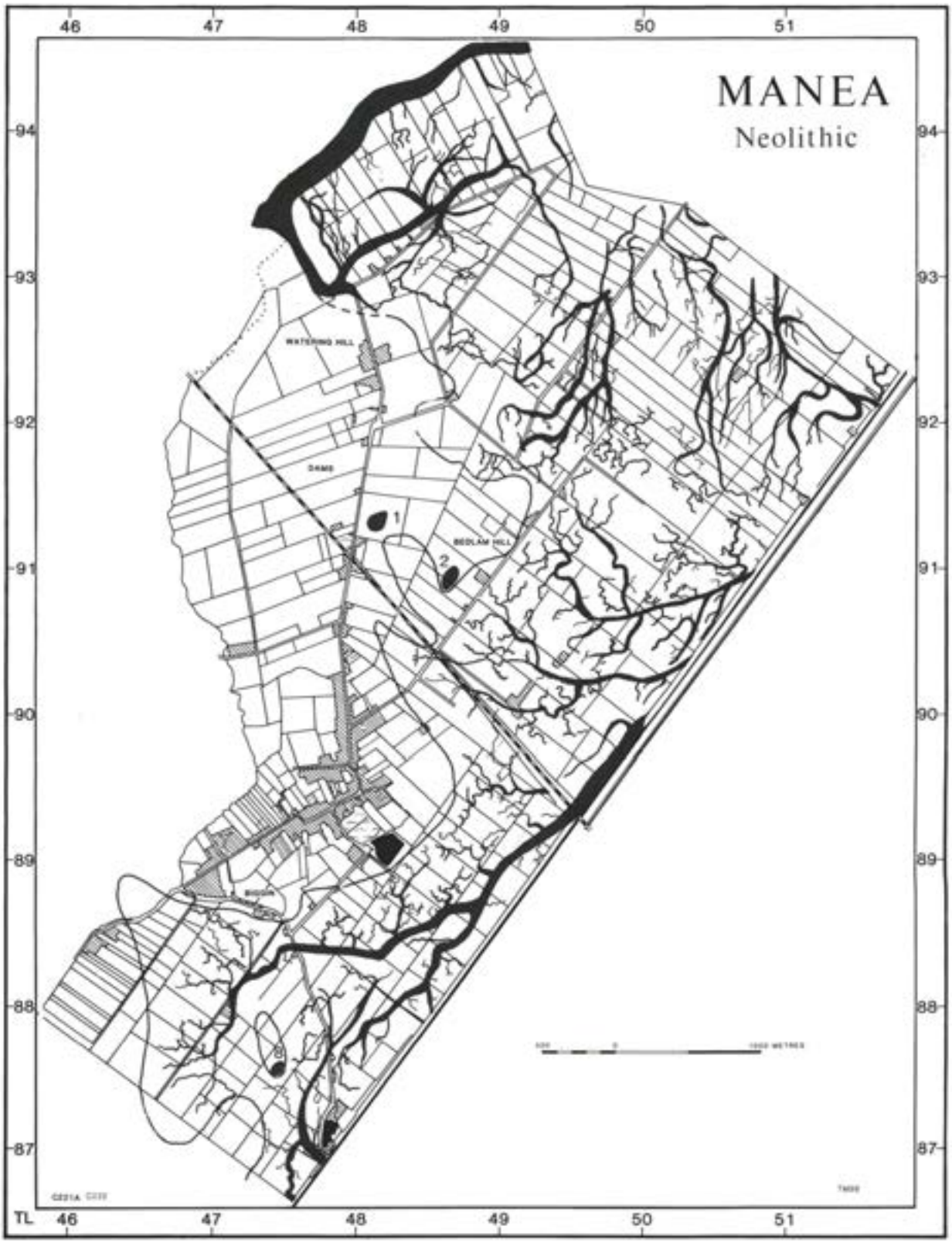



*Fig 28 Map of part of the eastern edge of the major March-Manea-Chatteris drylands, showing the position of Neolithic sites on a wide peninsula and on a small island off the edge (from Hall 1992)*

stretched eastwards with a post-and-panel structure forming a false entrance. A palisade and bank 18m long ran from the facade to help revet a primary subrectangular mound. The mortuary chamber contained at least five bodies. On the forecourt were placed several complete pots, red-coloured stones were left in the vestibule, and a turf mound was built in the eastern end of the chamber. The long barrow was finally built over the whole primary structure, extending also to the west. Its core was clay silt capped with turf and gravel, 50m long, 1.2m high, and surrounded by a ditch 2.5m wide and 1.5m deep (Hodder and Shand 1988). The resemblance of this monument to the well-known long barrows of the chalklands to the south and north of the Fenland is obvious, but the preservation of the Haddenham site has allowed a more detailed look at burial ritual.

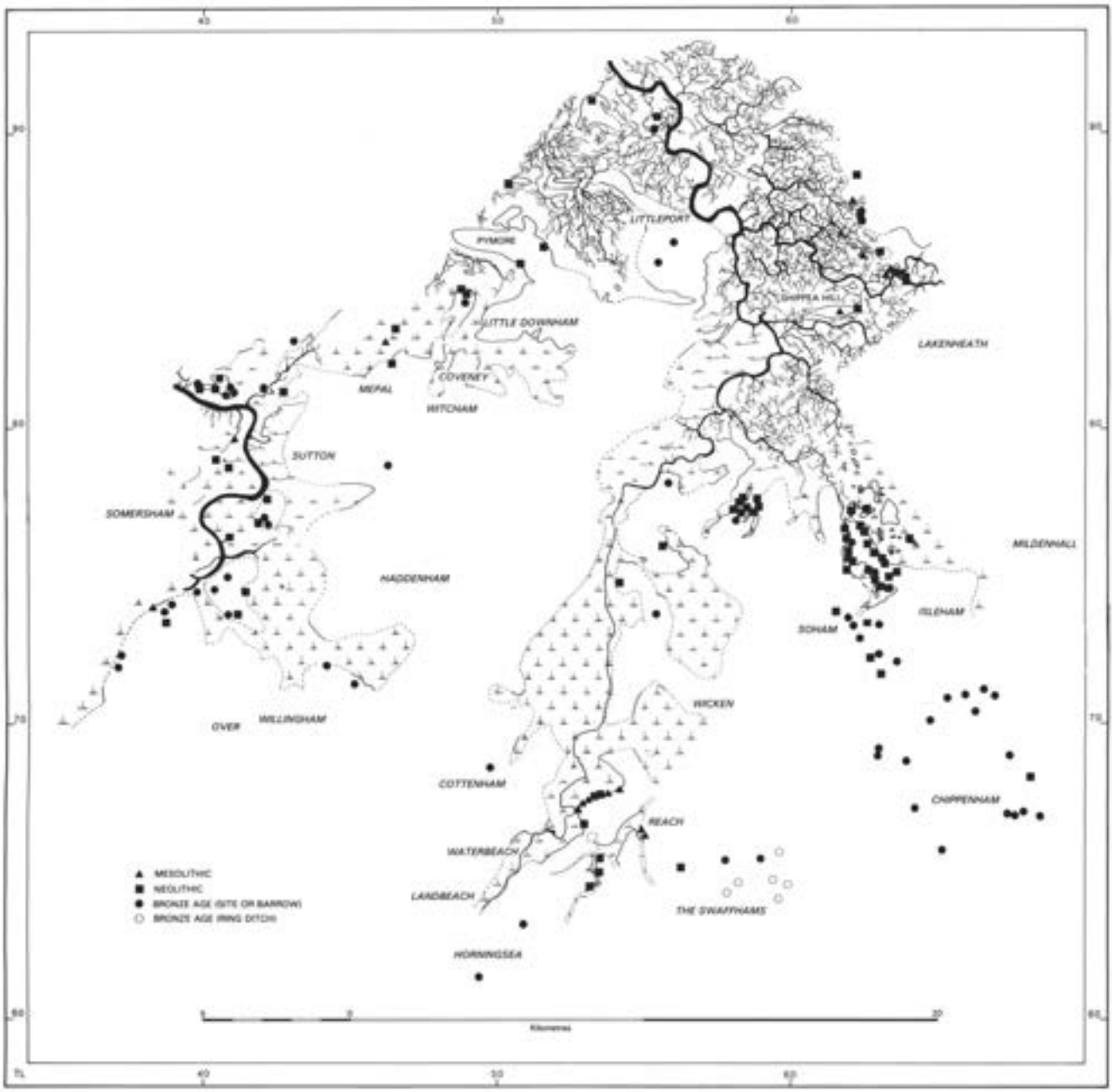



*Fig 29 Map of the central southern Fenland, from Somersham to Isleham, and Littleport to the Swaffhams; the distribution of sites identified by the survey is shown: Mesolithic, Neolithic, and Bronze Age; many sites are positioned on or near the fen edge, on peninsulas or islands, and near streams, and they occur in clusters; the south-eastern spread of sites is continued along the Suffolk fen edge (see Fig 35)*

Although preservation of the wooden chamber and posts was quite good, no trace of carved or painted surfaces was found. Nor were textiles recovered. It has long been suggested that organic materials are more likely to carry complex symbols and artistic designs than would inorganic stone or even pottery, with its more constricted size and surface (Coles 1984). Yet the Haddenham barrow had no indication of decoration either artistic or symbolic (Evans 1989); there is a contrast here with many waterlogged sites in other cultural situations (Coles and Coles 1989).

In 1993 a third long barrow was detected on aerial photographs; it lies between the Sutton and the Haddenham barrows and is marked on Fig 52.

Across the river on a wide spur of gravel and sand is a fen edge site containing Neolithic flints as well as some Mesolithic material; excavation revealed no features or distinct signs of occupation (Evans and Hodder 1985, 22). But nearby, only *c* 600m away, was a causewayed enclosure discovered by aerial survey in 1976 although first 'seen' but not interpreted in a 1969 photo. The enclosure covers 8.5ha and is one of the largest known in Britain (Palmer 1976). It has one ring of interrupted ditches and an internal palisade. A formal entry was marked by complex recutting of ditch terminals and the deposit of human skulls and other objects (Evans and Hodder 1987, 186–91; 1988, 12–13). This was a dryland site and so the interior was poorly preserved, and the earthen banks also were destroyed by Iron Age ploughing. It is argued that the monument had a wide

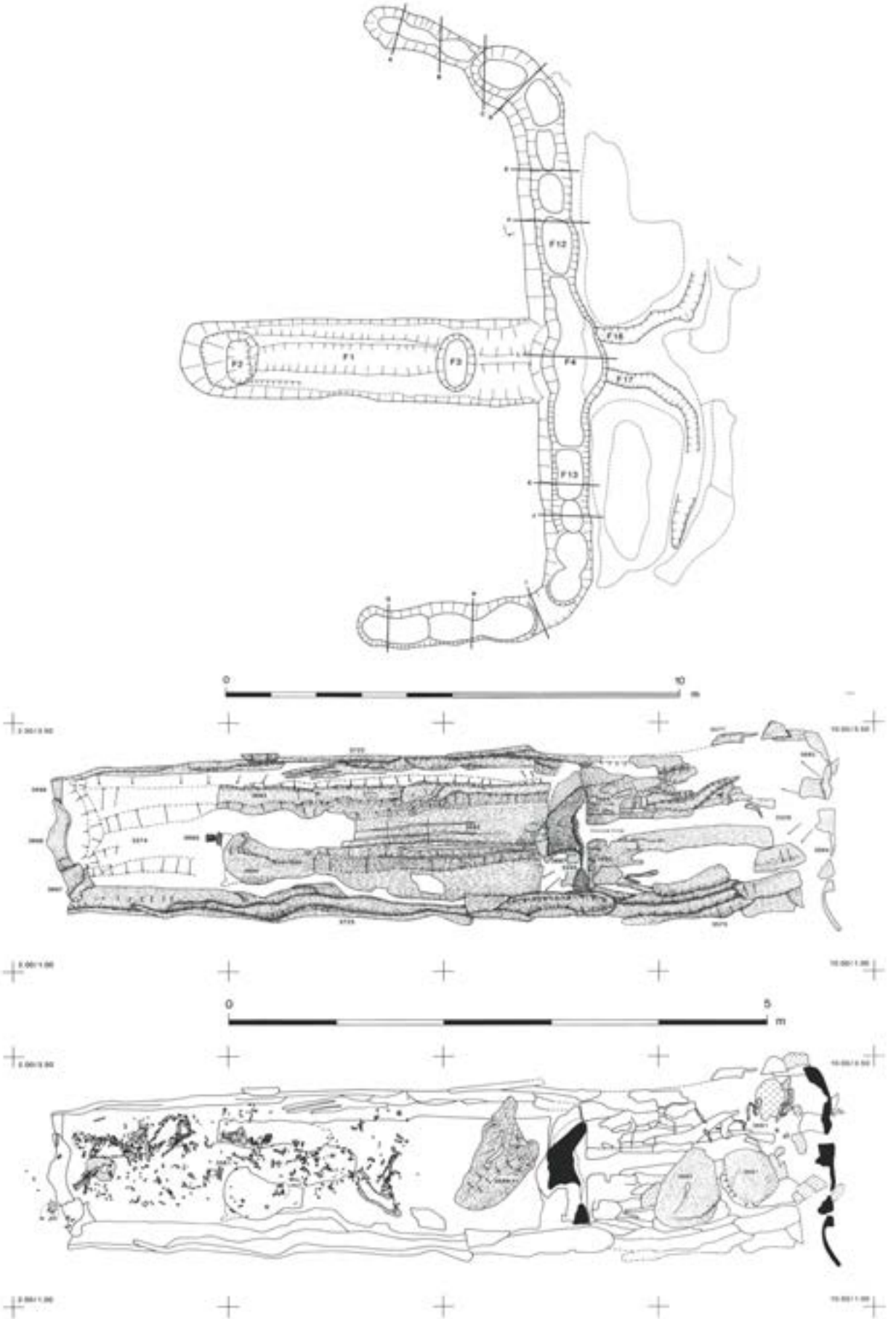



*Fig 30 Plan of the Haddenham long barrow: upper, the mortuary structure facade and forecourt; lower, the mortuary structure roof and floor (from Hodder and Shand 1988)*

communal, not domestic, purpose and had served as a focus for tradition and establishment. To the north of this important complex is an area in Witcham where small sandhills or islands are now being exposed by ploughing. Several lithic sites of Neolithic character also contain Mesolithic material. A purely Neolithic site at Mepal, with flint scrapers, knives, burnt flint, and stone axes, represents an eastern extension of the Chatteris complex. At Way Head, Coveney, a gravel spread has settlement, and a sandy rise near Wardy Hill has material of Neolithic type; cropmarks of a rectilinear enclosure are probably prehistoric but of later date than the flints.

## The south-eastern fen

In the south-eastern Fenland, the central lands extend in fingers separating the stream tributaries of an ancient river which flowed northwards to the Wash. There are broad spurs and small islands rising from the fen (Hall forthcoming). The pingo at Pymore has both Mesolithic and Neolithic material, including pottery and a polished flint axe (Fig 29). Just to the north, on a small island called Primrose Hill, both lithic traditions occur again, with an igneous stone axe on the island edge. A saddle quern may have come from the Neolithic occupation, or from a Bronze Age site nearby. South of the pingo on Pymore island, at Frith Head Drove, several Neolithic settlements are now known, one of them yielding quantities of pottery as well as 1800 flints, mostly Neolithic in character and including transverse arrowheads. Perhaps all of these sites at Pymore were directing attention to the pingo which would have formed an ideal decoy duck pond. On the western edge of the central dryland, around Ely, there is relatively little Neolithic material, probably owing to the heavy nature of the soil. A few stone axes are known but lithic scatters were few and sparse, and, although this area lay adjacent to an ancestral river Cam (with the Great Ouse not flowing to join it at this time), it is only further south that riverside sites are known.

*Fig 31 Aerial photograph of Isleham Fen, 1982, showing the sand peninsula with small islands, and a course of the river Lark; there are 20 Neolithic sites in the whole Isleham complex (photo: Cambridge University Committee for Aerial Photography, copyright reserved; RC8-EA 217)*

The gravel spreads around Joist Fen in Waterbeach have yielded at least a dozen stone and flint axes but no lithic spreads which would indicate settlement (Hall forthcoming). To the west, the Landbeach area also had stone axes and no lithic concentrations. This opens the question of site catchments, because the nearest accessible settlements identified by the survey are at the Swaffhams, some 5km to the south-east. It is likely that the axes represent forest felling or some other activity by people working from the Swaffhams, unless the disposal of stone axes in such numbers indicates some other less utilitarian discard which might not be so confined to the immediate territory.

Previous discoveries in the Swaffhams gave no indication of the great concentration of Neolithic sites in the fen, most of them perched on the gravels and sands of an ancient river course and a parallel old course of the river Cam running north-east; the light soils on the edges of the land between these rivers are typical places for settlement, offering easily-cultivated soils and proximity both to water and to the fen itself. The map (Fig 29) shows a tightly packed settlement zone, with several lithic scatters both Mesolithic and Neolithic in character along the old Cam, which here is 1.6km wide and filled with 1–3m depth of peat. The Neolithic components include axes and potsherds (Hall forthcoming). One site very near the channel edge survives as an earthwork 37×22m and 0.3m high; it may be a long barrow. A settlement site *c* 250m to the south yielded much pottery, burnt flint, and some other lithics. The absence of sites on this western edge further south is due to the soil changing from sand to gravel and then to clay. Across the peninsula is a site at the junction of two channels, directly facing an opposing bank with a Neolithic site, and beyond is a cooking site with intensely burnt flint and other settlement scatters. The whole Swaffham group forms a neat pattern and the presence of a possible long barrow and specialised sites points to a tightly knit group working the good soils in a place well supplied with natural resources and perhaps quite isolated from other communities.

Northwards along the Neolithic fen and the ancient channel of the Cam there are several Neolithic sites. But north of Soham, at Broad Hill, is a remarkable group (Hall forthcoming), an extension of the Isleham complex (already noted in chapter 3). A small spur of sandy soil pokes northward into the fen which sends narrow tongues into the spur itself. Within 1 sq km there are eight lithic sites, all with both Mesolithic and Neolithic material except for one of the Bronze Age. The industries include many knives, scrapers, axes, and other tools, only recently exposed by ploughing and thus escaping the collectors of the recent past. As several sites lie next to the peat fen, undisturbed remains survive and waterlogged deposits seem likely.

At the junction of the ancient streams of the Snail and Lark is the Isleham complex set upon light soils, mostly sand, in a narrowing peninsula with numerous islands in the fen (Fig 31). Several of the lithic concentrations have Mesolithic material but the majority are Neolithic, with nine identified as earlier and eleven as later Neolithic. Almost all the sites yielded pottery as well, and silica-gloss has been observed on some flints. As pottery was abundant it seems that most of these sites have only recently been exposed to the elements; parts of some sites dip beneath the peat and there is every chance of waterlogged deposits. Of the sites, one on a small island right at the river junction was very rich in material and another near the old Lark channel also yielded many lithic and pottery artefacts. All the sites had both flint tools and flaking debris, as well as potboilers; there are also several concentrations of these calcined flints without unburnt material, mostly at the fen edge (0–2m OD). They probably represent cooking sites, on analogies both historical and experimental (Murphy 1978; Barfield and Hodder 1980; Coles 1973; Buckley 1990).

*Fig 32 Polished flint axe (length 265mm) from Fordham, Cambridgeshire (photo: G J Owen)*

The earlier lithic sites in this complex occur on both sides of the peninsula, on the fen edges, and there are two on the upper levels, one where the great Bronze Age Isleham hoard was found (Britton 1960). The locations of the later lithic sites are on higher ground, with a Beaker site at 1.8m OD; the fen levels were rising. Upstream, on the Snail near Fordham, there are a couple of Neolithic sites set close to one another, one at the river's edge and the other higher up; a number of stone and flint axes represent scatters of activity over areas not otherwise occupied (Hall forthcoming; Fig 32). Further south, around Chippenham, the Neolithic is sparsely represented; one site on a sandy hillock is unusually positioned away from the fen, but a spring issuing nearby must account for the choice of location.

South of the Little Ouse and north of the valley of the Lark, the fen edge consists of a hummock and hollow landscape with numerous sand and light soil ridges set off the upland itself. A remarkable concentration of sites of the later prehistoric period has been recorded from the undulating ridges in the Mildenhall area (Martin in prep a).

## Hurst Fen

The major site of Hurst Fen at Mildenhall is central to an extensive spread of developed Neolithic material on the fen edge, upslope and near the river Lark as well as along the Little Ouse. All lie west of the Icknield Way. The occupation at Hurst Fen covered an area of *c* 1.5ha and, although the site was rich in artefacts of stone and pottery, little had survived of the structures presumed by the excavators to have existed (Clark *et al* 1960). Postholes, a line of stakeholes, and 200 hollows or pits were found, but no hearths, walls, or floors. A shallow ditch crossed the site. Clusters of pits, 10–15 in a cluster and mostly very shallow, occurred over the site and were considered to represent storage pits for individual dwellings (Fig 33). Bone had not survived well, with only traces of cattle, horse, sheep/goat, and pig. Some hazelnut shells were found in pits, and charcoal was from oak with a few traces of willow. The flint industry represented on site was very large, the total recovered by excavation in the 1954 season being no fewer than 16,500. Of these, most were primary flakes; cores, utilised flakes, serrated flakes, and scrapers made up the bulk of the rest. Specialised forms included leaf-shaped arrowheads, large laurel-leaf points, awls, knives, fabricators, and polished axes (Fig 34). Stone objects included saddle quern fragments, rubbers, hammerstones, and other heavy-duty pieces. The pottery was mostly grit-tempered and round-based, with a number of vessels decorated with incised vertical or diagonal lines and grouped single impressions (Fig 34).

Although the site was severely damaged by the loss of the uppermost levels, the excavators considered that it demonstrated the presence of a community in the fen edge at *c* 3000 BC engaged in opening and maintaining clearances for cultivation, in providing pasture for domestic animals, and in hunting and gathering wild resources. If this was the case, the community would have been affirming sufficient confidence in a mixed economy and the fen edge environment to allow the establishment of a substantial undefended settlement, possibly occupied on an all-year basis. There are other possibilities. Perhaps Hurst Fen consisted only of a long series of intermittent 'squats', temporary occupations, which when taken together look like a major unified occupation. Or it is possible that Hurst Fen was not a real settlement at all, on the analogy of the evidence from the excavations at Etton (Pryor 1989).

Perhaps both Hurst Fen and Etton are better considered as focal points for large Neolithic communities, one on the western and one on the southern fen edge. Each site served as a permanent centre for settlement and ceremony. During the drier months of the year, some of the people were elsewhere with their herds, outfields, orchards, and wider catchments; lithic scatters mark some of these outstations. On or near the centres some arable plots were laid out and cultivated. In darker seasons, the centres attracted the people back, for communal warmth, celebrations, and ceremonies.

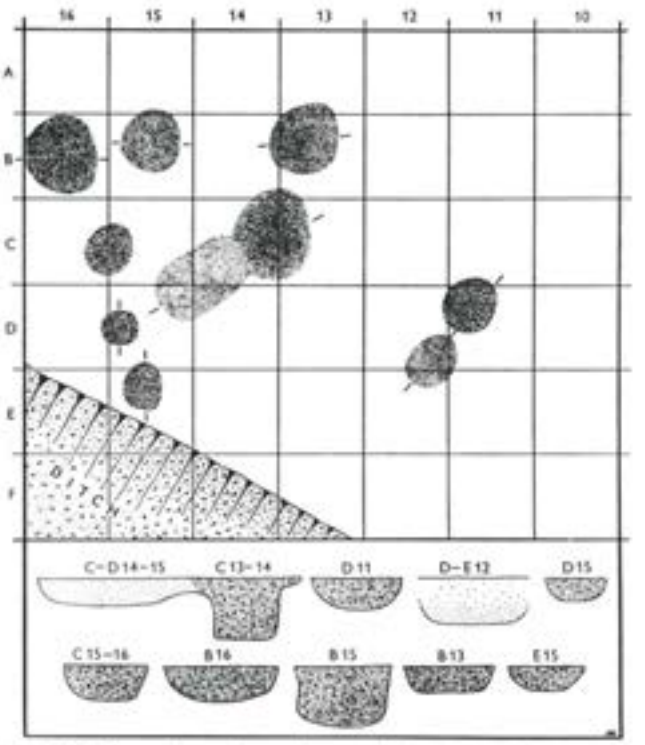



*Fig 33 Plan and sections of some of the pits and hollows on the Neolithic settlement of Hurst Fen, Mildenhall; the pits are interpreted as storage pits; each square is 1m (from Clark et al 1960)*

The land around was thus in permanent use, but the actual settlements were only sporadically the focus for full assemblies of people. If this interpretation is logical, it still leaves a large gap in the recognition of other major concentrations over the whole of the Fenland, and it may well imply rather more than is warranted for Hurst Fen. However, it may be worth noting that some levelling of the Hurst Fen site took place in 1984, and in 1988 a lithic scatter was noted, presumably only recently exposed; this included leaf-shaped arrowheads, leaf points, a sickle, and greenstone axes. It is likely that the activities at Hurst Fen were more extensive than was previously thought.

This site probably served a series of small settlements in the immediate area of Mildenhall and Lakenheath. Many occur on sand ridges off the upland edge (Fig 35) and consist of scatters of flints, sometimes with potsherds, and sometimes associated with burnt patches on the ridges (Martin in prep a). Many of the sites cannot be dated more closely than to a general Neolithic to early Bronze Age period, although a few others have diagnostic pottery. At Beck Row two sites have Neolithic pottery, probably related to the Hurst Fen Mildenhall ware; these may represent small fen edge encampments. There are also a large number of solitary finds of axes, both flint and Groups VI–VII stone, as well as fragments of axes on the settlement sites; the former may represent accidental losses during woodland clearance, while some may have been deliberately buried and discarded. Other stray finds include arrowheads and querns or quern fragments. A few of the lithic assemblages contain flint knives and blades with silica gloss.

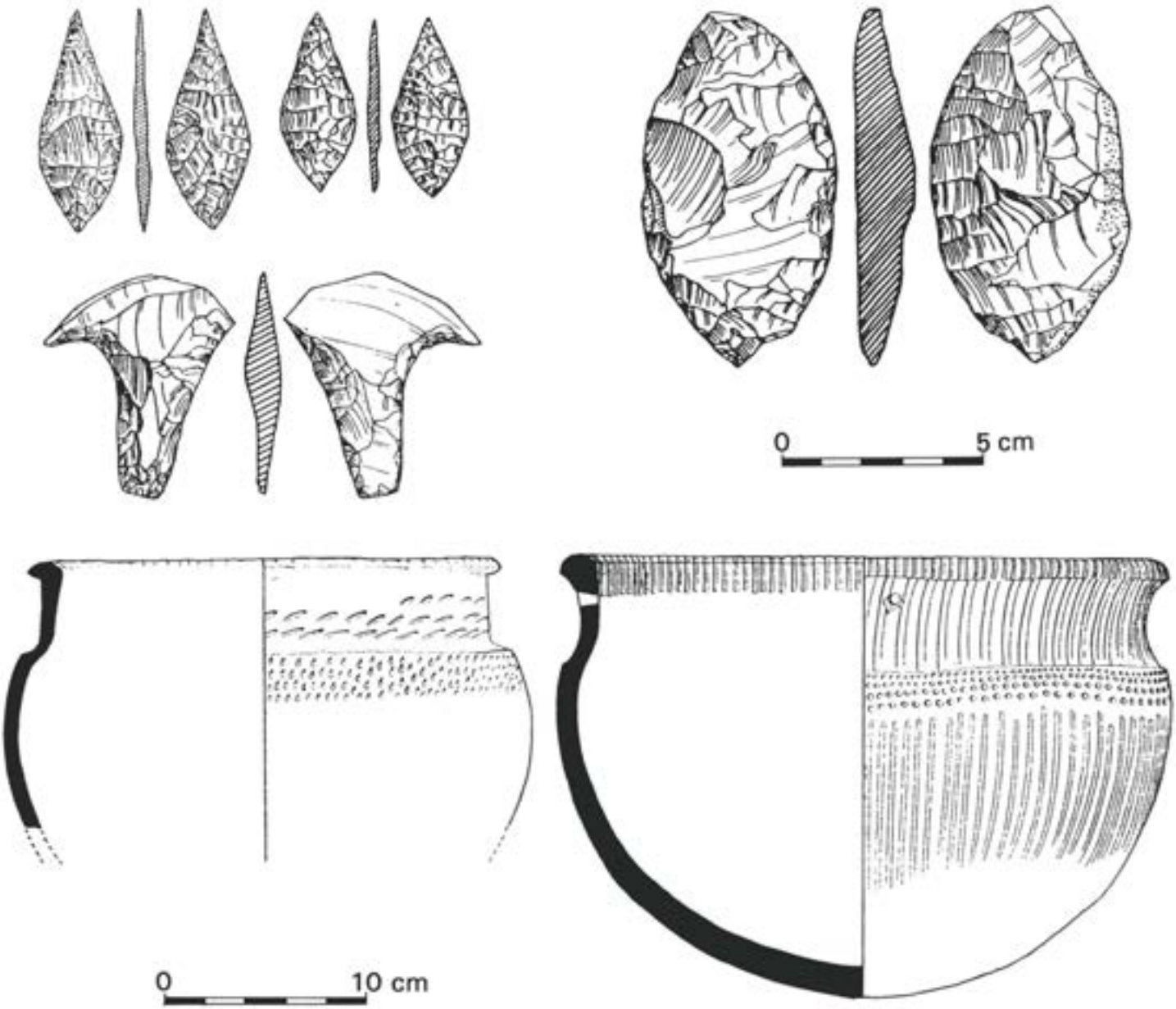



*Fig 34 Pottery and flint implements from Hurst Fen, Mildenhall (scales: pottery 1:3; flints 2:3; from Clark et al 1960)*

It is important to note that a number of the lithic sites contain both leaf-shaped and barbed-and-tanged arrowheads; most of these also have potsherds classed as Beaker/early Bronze Age. There is still relatively little evidence for the animal husbandry and crop cultivation practised. The numerous burnt patches on or near the lithic scatter sites suggest on-site processing and consumption of food, or, less likely, the production of pottery.

Reference has been made to the extensive investigations of the Mesolithic occupation at Peacock's Farm, Shippea Hill. The initial excavations identified a Neolithic settlement and the pollen analysis of the deposits suggested that there had been little impact on the woodland vegetation; short seasonal occupations were suggested. At Letter F Farm, lithic scatters on the edge of a sand ridge adjacent to the fen (Fig 36) extended over an area 200×150m and consisted of earlier Neolithic material with some Mesolithic forms as well (Smith *et al* 1989). No evidence of structures was found, and the curation of cores, the small size of flakes, and the small number of tools suggest short episodes of occupation, perhaps on a seasonal basis, for fishing, hunting, gathering, or herding. This might be the explanation behind both these sites, set outside or on the very edge of the upslopes. More permanent settlements may have been more directly positioned on dryland well clear of the fen dampness. The numerous fen edge settlements now revealed by the survey probably contain other examples of substantial occupation sites. Hayland House Farm east of Shippea Hill (Leaf 1935a) and Swale's Tumulus near Mildenhall (Briscoe 1957) are two possible, if unlikely, contenders (Smith *et al* 1989, 246); they would probably repay further analysis.

## Potboilers

The larger sites, and the smaller lithic concentrations, generally contain some quantity of burnt flint. There are also many scatters of burnt flint without any unburnt material and these are worth a brief discussion here.

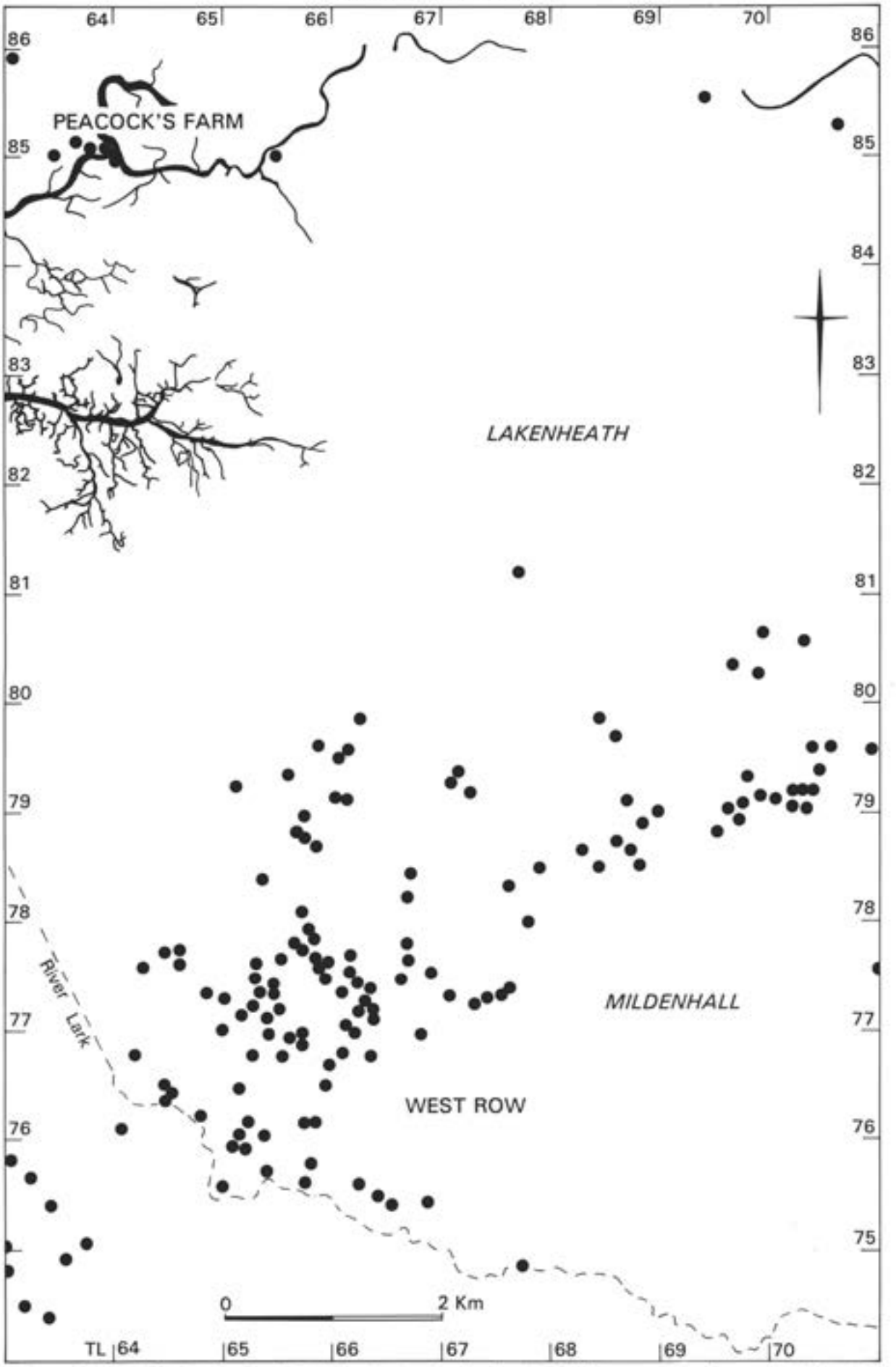



*Fig 35 Map of Mildenhall and Lakenheath, Suffolk, showing the distribution of lithic, pottery, and bronze finds from the survey and previous discoveries; a majority of the sites are Bronze Age but there are considerable numbers of Neolithic flint scatters, some with potsherds, and stone axes, on the fragmented fen edge which consists of numerous small ridges of sand (based on E Martin's surveys)*

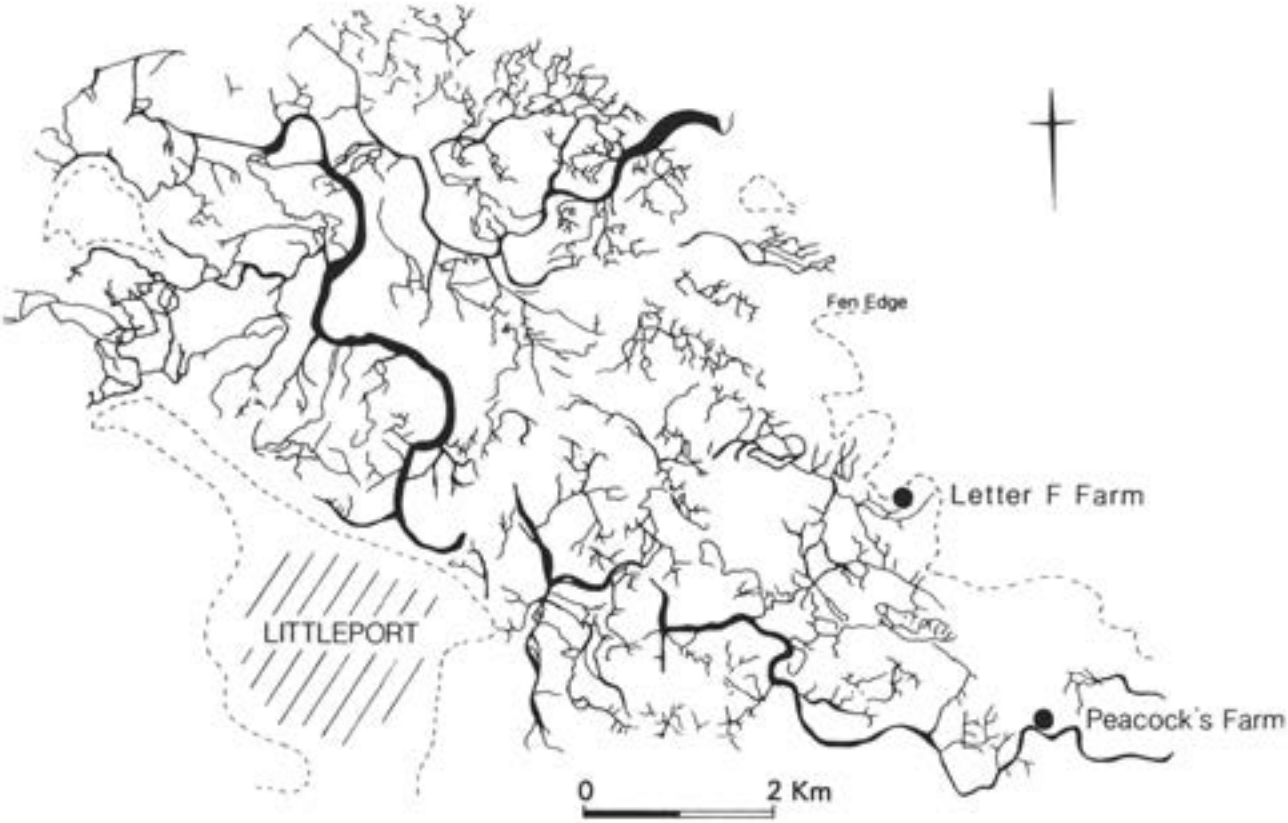



*Fig 36 The location of the Neolithic sites of Peacock's Farm and Letter F Farm in the Little Ouse system (from Smith et al 1989)*

Potboilers, as they are called, are very commonly seen in collections of lithics, and relatively few assemblages lack any examples of these fire-cracked and crazed flints. They are created when lumps of flint are heated and dropped into water, the abrupt change in temperature turning the flint grey or white, breaking the lump into fragments, and crazing the surfaces. Scatters of potboilers, which need not have been dropped into a pot (as a pit will be as effective), occur in isolation as well as with unburnt lithics. When found with no other artefacts potboiler sites are undatable, but in the Fenland the position of most of the sites, low down on the fen edge, can only mean that they are prehistoric since the surfaces were not available in later periods. In the south-eastern Fenland, potboiler sites are very numerous (Fig 37); the embayment of the Wissey alone has over 300 potboiler sites, as well as many lithic sites with associated potboilers (Silvester 1991, 35); at Methwold a lithic site has potboilers at both ends of the spread. Many small scatters of potboilers were not recorded in the survey. So we are dealing with hundreds if not thousands of potboiler sites, dating from the Neolithic through the Bronze Age at least; there are a very few associations with later material in the Wissey embayment and the Nar Valley (Silvester 1988a, 128), and in the Iron Age the surfaces were too wet for any of this industrial or domestic activity.

The potboiler sites tend to be small, many less than 0.06ha in area (a circle with a diameter of 28m), with a few much larger. Most have been ploughed and levelled, so the 'burnt mound' phenomenon, so widespread in other areas of Britain and Ireland (O'Drisceoil 1988; Buckley 1990), is not evident. Some mounds of potboilers do exist in the Fenland but they are rare, and it may well be that many of these sites never were mounded.

The distribution of the sites tends to be similar to that of the lithic scatters and concentrations; at Methwold and Hockwold there is a uniform scatter of potboiler sites and lithic sites of the later Neolithic and earlier Bronze Age (Silvester 1991, 13–23). Several sites have been dated in Suffolk to *c* 2300–2000 BC; elsewhere many appear to be of later date, and it is probable that a majority of the Fenland potboiler sites are equally late.

## The eastern fen

We have already mentioned the remarkable concentration of Neolithic sites along the eastern fen edge (Figs 21, 37, 38). Three parishes enclosed by the valleys of the Little Ouse and Wissey (Hockwold, Feltwell, and Methwold) have supplied the bulk of the evidence; the area is known as the Wissey embayment (Silvester 1991; Healy forthcoming; Cleal 1984).

Along the southern border of this area there is evidence of a change in the pattern of occupation from the Mesolithic to the earlier Neolithic. Activity along the ancient Little Ouse seems to have diminished but some settlement now occurs on the floor of the basin, on sand ridges well distant from the upland (Fig 21). One sandhill off Blackdyke Farm has early Neolithic material spread over 150m of its length, and two more sites

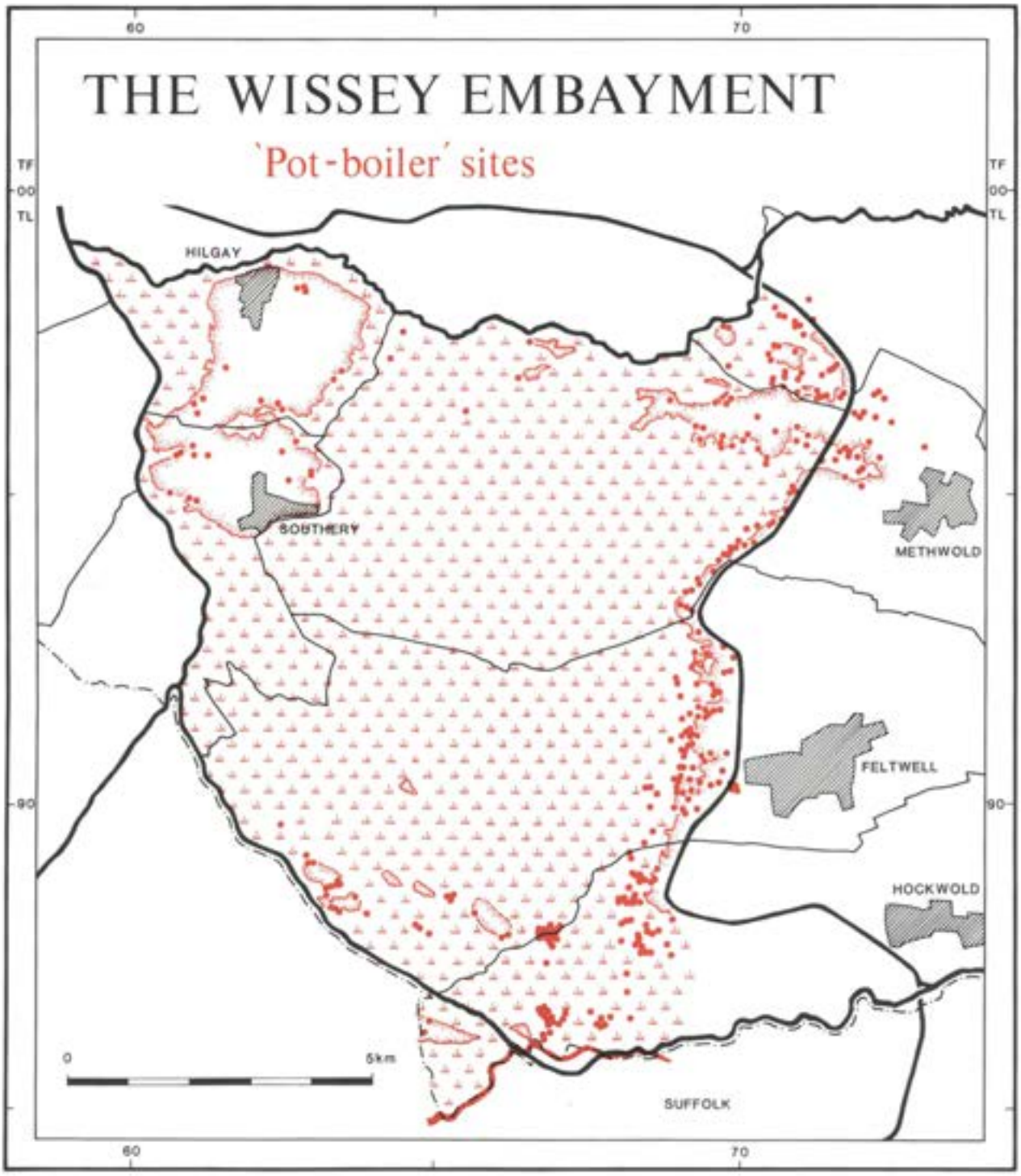



*Fig 37 Potboiler sites on the south-eastern fen edge and small islands in the fen; the spread of Southery-Hilgay is also shown; some of these sites are probably of the late Neolithic/early Bronze Age (from Silvester 1991)*

of the same period lie further north off Whitedyke (Silvester 1991, 56).

Further north along the fen edge there is a denser concentration of settlements on the northern tip of the Feltwell valley, on the Kettle Lane spur, and west of Whiteplot (Silvester 1991, 32). New areas of skirtland were now taken in as if the whole of the upland edge was 'discovered'. One of the Whiteplot sites consists of two sand ridges just showing through the peat; both have spreads of flints and pottery, probably coalescing in the still-submerged sand hollow between. Off Kettle Lane one site lies on parallel sand ridges, and flints and pottery extend across the intervening hollow, brought up by the plough. The condition of material in these positions is excellent, as pottery is only recently exposed; higher up, sites have had longer to erode. An example of the latter was investigated at Kettle Lane; the peats overlying and sealing the ancient occupation were disturbed by ploughing, and only in the hollows between the ridges did traces of buried soil survive. An upland site at Whiteplot has a spread of lithic material over *c* 0.5ha.

Out to the west of Feltwell, there is little sign of much interest in the basin floor ridges. In contrast, west of Methwold on Stubb's Hill, there are several earlier

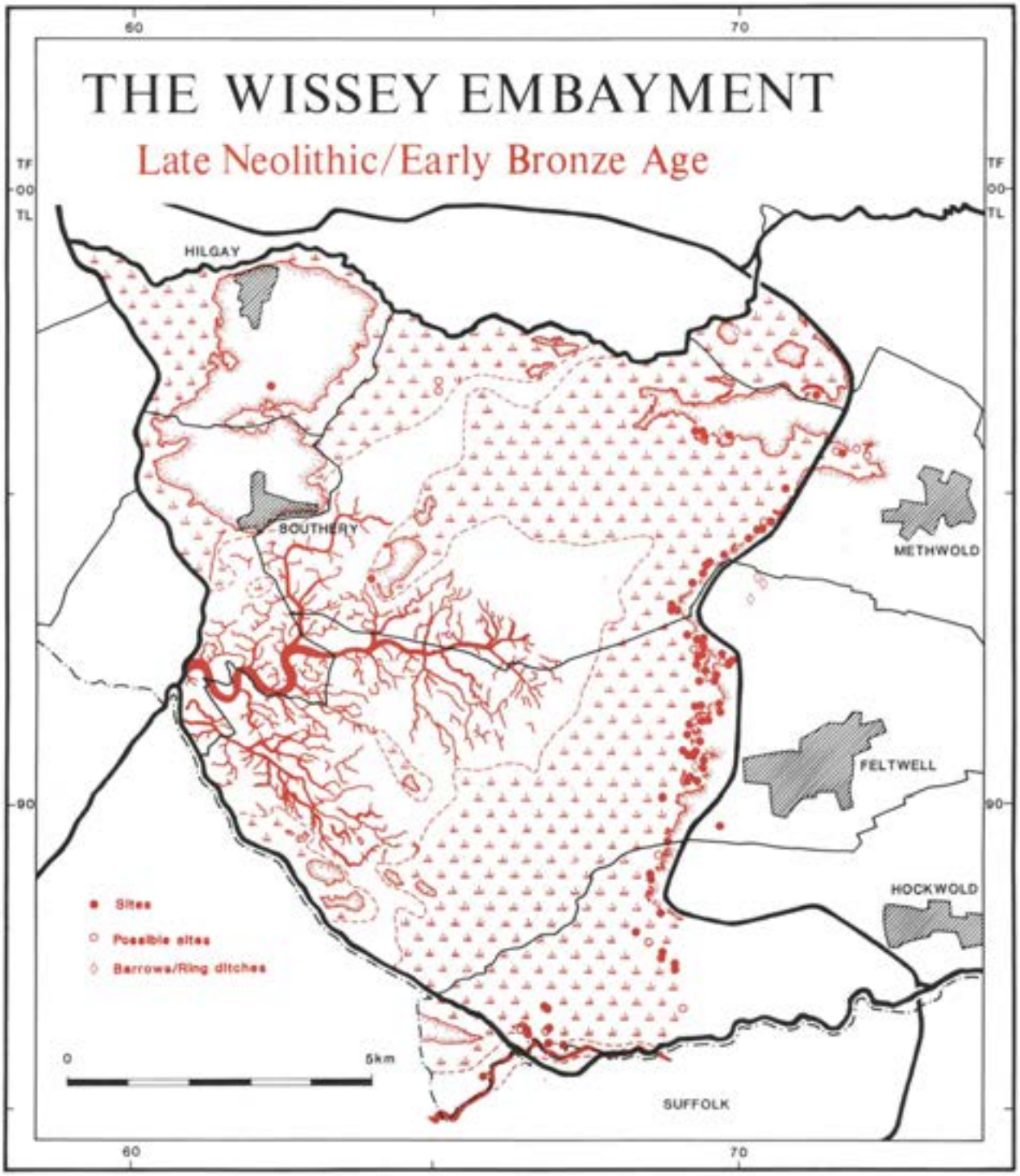



*Fig 38 Late Neolithic /early Bronze Age sites on the south-eastern fen edge; there are a few barrows and ring ditches set inland; the major riverine systems probably inhibited settlement on the Southery-Hilgay island at this time (from Silvester 1991)*

Neolithic sites, presumably associated with the abundant flint and stone axes found previously (Silvester 1991, 62–7). This ridge and another to the north lay very near the ancient course of the Wissey which flowed south-west. Other settlements were located on both sides of the river, near a barrow, and probably reflect activities concerned with the river as much as with early agriculture. The fen edge itself in this area has a spread of sites on the drift ridges at the base of the chalk slope, extending from Methwold Hythe southwards. Another group clusters on the northern side of the Hythe valley. This is a small peat-filled valley running east from the Wissey embayment itself, and several lithic scatters lie on the northern edge. One of these, Methwold Hythe, was excavated but ploughing had already destroyed any traces of structural features; the lithic material suggested a later Neolithic date (Leah 1992)

It is worth noting here that this eastern fen edge is unusual in a Fenland context in the absence, so far, of major communal monuments such as the more westerly Haddenham, Stonea, and Etton, although the dense spread of Neolithic occupation sites suggests that there was no scarcity of settlement, no lack of interest in the land, no absence of groups who must have had contact

with their contemporaries to the west. The communal sites may yet be revealed, or we may have to consider the circumstances which dissuaded the communities from embarking on such major activities. Healy (1992) has suggested a 'long term low level of coordinating authority', or the more simple fact may be that we have failed to recognise local counterparts to types of sites more clearly seen in other areas. It may be that the natural disposition of water and marsh, surging and ponding around small islands, would have created the same effect as a human-built enclosure.

## Expansion on the eastern edge

During the later Neolithic, the effects of the rising levels of the sea were felt along the eastern fen edge (Fig 38). The incursion reached maximum about 1km from the upland at Feltwell-Methwold; tongues of fen clay clogged the river valleys and it may be that now the ancient course of the Wissey was affected, with its original channel south of Southery island blocked, forcing the river to swing north through the Hilgay gap; it is known to have been here in the Iron Age, 2000 years later.

The fen edge settlements of the later Neolithic are only with difficulty distinguished from those of the earlier Bronze Age, unless pottery or diagnostic flints are associated. The gradual drowning of the embayment in the earlier third millennium BC had relatively little effect in the southern area, with fen clay filling the channel of the Little Ouse. Peat fen developed over much of the basin. It is remarkable that, wherever in the Hockwold Fenland the mineral soil protrudes through the peat, there is lithic material of the later Neolithic or early Bronze Age (Silvester 1991, 82–7). The edges of the upland and sandhills beside the ancient river were occupied in an expansion of settlement that must indicate an influx of people, perhaps only from the uplands immediately adjacent to the east. It is tempting to view the development of the fen itself, with its watery resources, as the reason for this quite sudden expansion. Along the river, sandhills south of Clouds Farm have later Neolithic lithic spreads, with potboiler sites on the ridges behind. The spread of sites on the skirtland bordering the upland edge is extensive, off Whitedyke and Blackdyke, and extending southwards; some of these sites have Beaker material. Potboiler sites occur on the edge beyond Whitedyke. It is likely that many of the 74 potboiler sites in this area belong to the later Neolithic/early Bronze Age on the basis of the geographical correlation between lithic scatters of the period and the potboiler sites.

The adjacent fen edge to the north was seriously affected by the encroachment of the sea. The basin was flooded and fen clay laid down over the western expanse; by *c* 2700 BC the clay had reached its maximum extent. Saltmarsh lay within 2km of today's fen edge for several hundred years, with open water only a little distant. Zones of sedge fen and fen carr fringed the uplands. A few islands near Brandon Bank were totally isolated by saltmarsh and mudflats. Settlement of the later Neolithic was extensive and remarkably evenly spread along the edge; apart from one or two gaps, sites are only 100–200m apart along the fen edge at Feltwell where 37 later Neolithic/early Bronze Age sites, as well as some less dense scatters, are known (Silvester 1991, 33). Of these sites, five have late Neolithic flint artefacts including arrowheads, several have Beaker pottery or flints, and a couple are probably early Bronze Age; the remainder are less specifically diagnostic. Where the spreads of material are less than 20–30m apart they may represent one single occupation. One example of the problem is directly west of Feltwell itself; here a ridge of gravel and sand about 300m long has a lithic spread at its eastern end separated by 10–15m from a later Neolithic/early Bronze Age site. Beyond is a contemporary spread covering 80m along the ridge with three distinct concentrations of potboilers; next is a charcoal and a potboiler site, then a 90m length of ridge covered with pottery, flint, and potboilers of the same period. The whole complex, five sites, probably represents one single occupation of the later third millennium BC. These sites are packed within a very narrow fen edge. One site south-west of Feltwell lies inland, on the chalk slope back from the fen. Out in the basin itself, some of the low ridges at Shrubhill and Brandon Bank have potboiler sites but few later Neolithic settlement scatters are known; such sites as there are may represent expeditions into the fen and mudflats for wildlife.

Further north, in the Methwold area, the same pattern of lithic sites is visible, although again precise attributions even within the later Neolithic/early Bronze Age are difficult (Silvester 1991, 62); therefore, specific episodes of settlement appear sparsely populated, and wholly undiagnostic lithic spreads and potboiler sites cannot be used for detailed analysis of settlements. As we saw further south, only a few outlying islands were occupied; Stubb's Hill and two sites just north of the ancient Wissey probably represent wildlife exploitation. The fen edge from Methwold Hythe Lode is densely settled; some of these sites seem to be paired, on adjacent ridges, as if the settlement was organised around lower damp hollows. In the small valley of the Hythe, settlement along the northern edge was extended inland on to a sandy ridge at Thornham and also towards a stream called String Drain. The fen edge swings westwards on to the Catsholm ridge where several chalk drift hummocks attracted settlement on the southern edge at Sleves Holm with traces to the north as well. The evidence of settlement in this area of the eastern Fenland is further enhanced by potboiler sites, of which well over 100 are known; a majority may belong to this period, as the comparable distributions suggest.

The Wissey now flows westwards through the fen basin, separating the island of Southery-Hilgay from the mainland. In the earlier Neolithic, the ancient course probably flowed south of the island, dipping into the basin, but was blocked and directed by marine clays in the later Neolithic period. The island itself was probably

occupied in the Neolithic, but the numerous potboiler sites found around the island edges are not dated with more precision than the few scatters of undiagnostic lithic material (Silvester 1991, 43, 75). One later Neolithic site at Sam's Cut is on a sandy knoll overlooking an inlet. Yet the number of chance finds of axes made by farmers in and around the island points to more intensive activity than is suggested by the sites found in the survey.

The Southery-Hilgay island was little more than an extension of the eastern upland of the Fenland, and the sparse evidence of Neolithic settlement may not be representative of the activity on the great bulk of upland extending westwards between the Wissey and the Nar. This area of upland was not part of the Fenland Survey. At its northern edge, however, the valley of the Nar was surveyed and showed some interesting evidence of Neolithic settlement (Silvester 1988a, 169). Peat was forming in the valley by *c* 4300 BC, and fen clay was deposited in the valley mouth in the third millennium BC. Sandy ridges projecting into the peat fen were chosen for Neolithic occupation; potboiler sites, of which only a few need be noted here, occur across the valley bottom and slopes. Earlier Neolithic settlement on sand ridges near the river is known from lithic scatters in Marham, Pentney, and Shouldham, all upstream locations, and only one such site was recorded from the Wormegay island. Numerous stone axes and adzes from the valley suggest that activity was more widespread than the lithic scatters alone indicate.

The Mere Plot site at Shouldham was originally identified as Mesolithic in character, but excavation of part of the occupation surface showed that the majority of the lithics from the sand island were of the early Neolithic (Leah 1992). Settlement here took place on a dry surface and no organic remains were to be expected. Peat began to form on and around the site *c* 2800 BC, and an old river channel lay near the island. Pollen analysis of the palaeochannel deposits indicates that the site was wooded during occupation, with alder trees dominant; some clearance with cereal cultivation is also attested (P Wiltshire in Murphy forthcoming). No structural features were observed in the area excavated, but part of the site is still covered by desiccated peat.

Later Neolithic groups were established along the fen edge on both sides of the valley, at Marham, Pentney, and Wormegay, but the majority of lithic scatters are not concentrated enough to be classified as sites. Potboiler sites probably augment this Neolithic evidence, although their dating is very imprecise and some are likely to be more recent, later than the Bronze Age. A number of potboiler sites near Mere Plot in Shouldham are on the skirtland, and the proximity of dated Neolithic sites on sand ridges projecting into the fen suggests a source for this specialised work. The potboiler sites at Wormegay, allied to a lack of settlement scatters, may indicate seasonal activity on the island. Taken as a whole, the evidence for Neolithic settlement in the Nar valley is rather sparse when compared with that from the eastern fen edge further south.

## Seasonality

We have already made some observations on the likely dynamics of forest farmers and their seasonal demands and movements. It is easy enough to envisage the attraction of the fen in spring, summer, and autumn, but less so in winter. Summer grazing in the fen, with extensions into the autumn and early starts when possible, may well have been a particularly fruitful activity. The winter, when flooding was added to the cold, was less productive apart from the presence of overwintering wildfowl, and it is likely that the higher elevations, on islands and uplands, were occupied during this time. Perhaps we should designate the lithic scatters on sand and gravel ridges set out in the fen basin as seasonal summer sites, and those lithic concentrations more firmly based on the fen edge upslopes as the permanent camps, or at least the places where the winter months were spent. In this interpretation, the Etton centre, and perhaps Hurst Fen too, are important elements.

The overall impression of the bulk of the evidence must be that for the 1500–2000 years during which the forest farmers and their successors lived here, the Fenland basin, the fen edge, the islands, and the uplands represented an opportunity, and one that was seized. By the end, the Fenland would have been unrecognisable to the Mesolithic hunter-gatherers whose shadowy presence had left little or no permanent impression. The first farmers made small inroads, and their successors were the first to feel empowered to clear and maintain fields and to adapt to the changing environments. The formation of the peat fens and the penetration of marine waters altered the land enormously, so that by the end of the Neolithic the settlers were faced with more problems than opportunities. Land confidently cleared and cultivated was lost, marine-based waters had drowned parts of the basin, valleys were choked with sediment, and peat fen was extending over the land. Environmental opportunities were created, to be sure, but it was both the end of the beginning and the beginning of the end.

# 5 Life and death on the edge

In previous chapters, and particularly in chapter 2, we have seen how the landscape of the Fenland was altered over the centuries until about the middle of the third millennium BC. These changes were substantial but had rather long build-ups, maybe perceived only with difficulty by those who settled and worked in the Fenland. By the later third millennium BC, significant alterations to the landscapes were under way which may have been relatively rapid even in human terms, and perceivable by individual families. Over the next 2000 years the changes were dramatic and whole sweeps of land were overwhelmed by the material effects of rising watertables and clogged natural drainage channels. There was a profound change in the southern Fenland over this period, as freshwater peats began to overwhelm the land, drowning low islands and creeping up the slopes of the fen edge (Fig 39). In the northern and western Fenland, the changes do not appear to have been so widespread, but in small-scale terms the effects were as great; the changes around the Stickney ridge provide an example, with the morainic soils drowned and the ridge truncated by flooding deposits (Fig 45). In this chapter we are concerned with the landscapes of the later third, second, and earlier first millennia BC. This period is generally described as the 'Bronze Age', but in the Fenland, bronze itself played little part in events until near the end of the period. We are dealing instead with lithic scatters, burial mounds, and, later on, with metalwork deposition; securely-dated settlement sites are not common.

In the field surveys it was not often possible to separate lithic material into late Neolithic (third millennium) and early Bronze Age (very late third and early second millennium) units (Healy forthcoming; 1991). There may be differences in technology and in the products but these remain to be identified, and distinct changes over the few hundred years involved may be minimal; lithics are unlikely to be the most distinctive element in cultural change. Other elements in the life of the societies underwent more dramatic variation. From late in the third millennium BC we can see new forms of physical expression, a greater organisation of the land, and growing emphasis on material possessions assigned to individuals or to special ideas. In other words, the prehistory of the Fenland becomes seemingly less uniform, more complex, perhaps more stressed.

## Landscape changes

In essence, the earlier Bronze Age Fenland consisted of a series of wet environments, with the major embayments under the influence either of a marine or of a freshwater regime. 'It is a hard question,' observed Andrewes Burrell in 1642, 'whether the Sea or the Land Floods are the most potent enemies of the Fenns; but this is most certaine, that when the Sea floods and the Land floods meet, as they often times doe, halfe way betwixt the high Lands and the Sea, in that very place like two powerful enimies joyning in one, they doe over-run the Levell, and drowne it from one end unto the other.' And conditions did not remain stable for long. In the circumstances, the Fenland people who were well established along the fen edge and in some of the river valleys came under pressure and in some cases were forced to abandon the edge and move on to new and more stable positions.

In the north and north-west, the influence of marine flooding was felt well before 2000 BC and marine and freshwater deposits were laid down over very wide areas, reaching their maximum around 1700 BC. Then the sea began to withdraw, leaving low-lying areas swamped with freshening waters and fen vegetation. By *c* 1400 BC renewed marine flooding brought tidal conditions well inland, the creeks draining into an estuary as far inland as Spalding. Peat continued to form inland and later expanded over the silts as a result of the influence of the Welland and Glen rivers, but the marine flooding continued to be severe in the early first millennium from the Bicker Haven estuary. The deposits representative of these episodes are very fragmented, the later peats in the Witham now being seriously depleted. Along the western fen edge north of the Glen, the lowest peats are covered by marine silt and clay. The western embayment at Dunsby-Rippingdale probably consisted of a series of small islands running from Pointon southwards and on towards Guthram Gowt.

Along the central-west Fenland, the widespread peats of the early third millennium were overwhelmed by marine-based deposits; these indicate that Whittlesey became an island, and many other slight elevations were similarly isolated. To the north, Crowland remained dry but diminished in size, with freshwater swamps surrounding it by 1500 BC. At Borough Fen, peat had filled the embayment by *c* 1000 BC. Renewed marine flooding in the succeeding centuries created conditions for massive deposition of silts and clays in places, and ponding peat formation against the upland. The south-west Fenland was affected by marine-based flooding in the mid third millennium BC with its maximum extent *c* 1700 BC. Thereafter the area reverted gradually to freshwater fen which submerged most of the silts and clays. The great woodlands of lime and oak were gradually cleared from the islands and peninsulas.

In the south-central Fenland, the great embayment bordered by the Whittlesey and March peninsulas was invaded for the first time by marine-based sediments, and by the late third millennium BC spreads of clay and silt were deposited. The marine influence decreased in the second millennium BC and waterlogging of the basin was complete by *c* 1100 BC, with Chatteris, Stonea, and Manea now isolated islands for the first time. The legacy of the marine incursion was a powerful

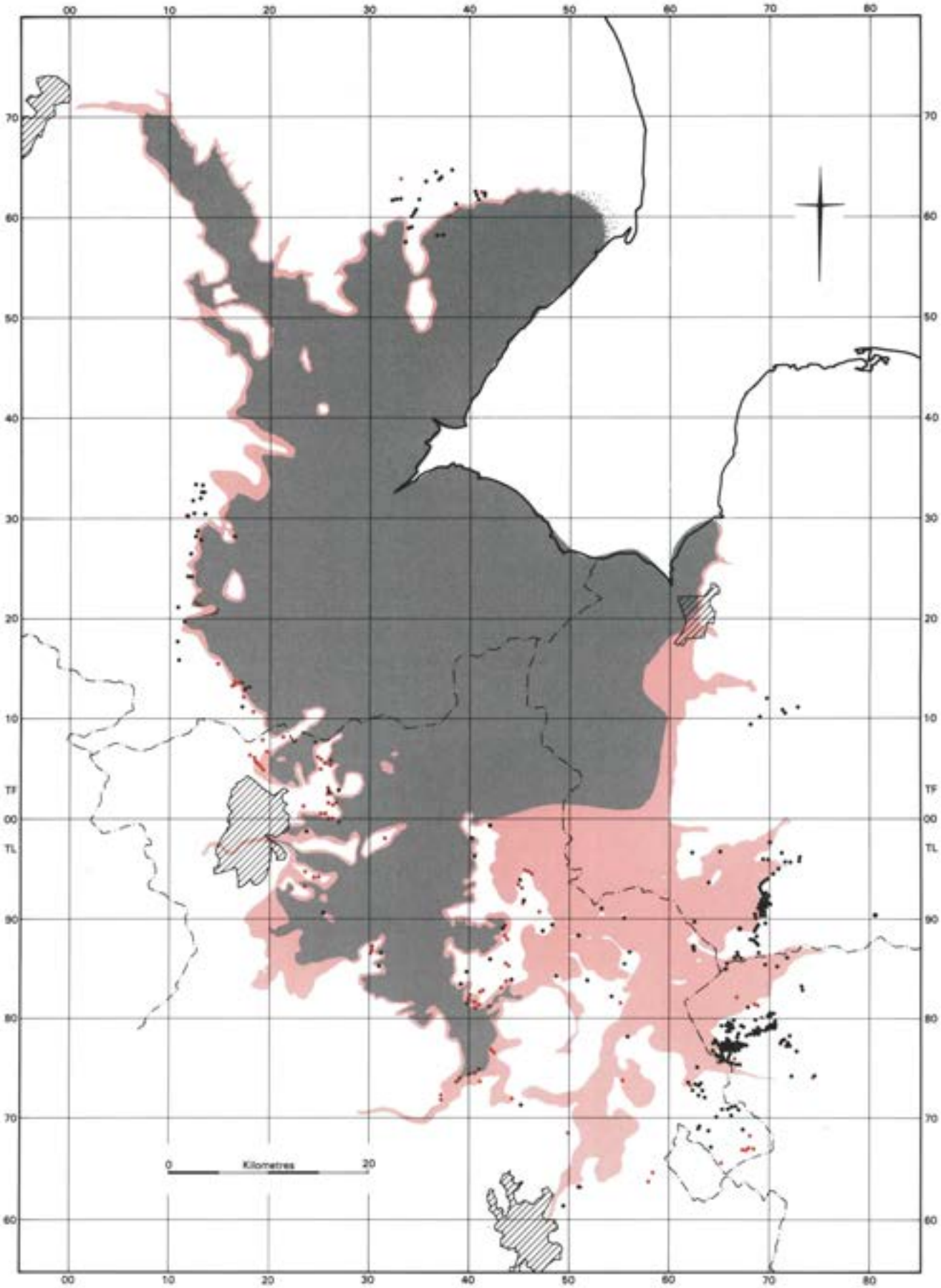



*Fig 39 The Fenland, c 2500–2200 BC, showing the silt (grey stipple) fen in the north and west, and the peat (red stipple) fen in the south-east; the distribution of lithic and pottery scatters identified by the survey is shown in black, with some small concentrations in the north and along the western fen edge; dense concentrations occur in the south-east along the fen edge; the locations of round barrows and ring ditches are shown in red; one spot may represent a single mound or a cemetery of mounds; the complementarity of this distribution with that of settlement sites is apparent*

disincentive to successful widespread cultivation in this area. The base-rich waters of the Great Ouse discouraged the development of bog vegetation, unlike conditions in the western Fenland in the Thorney area.

In the south-east, marine clay deposition was very extensive by the mid third millennium BC but the influence of the sea was reduced thereafter and freshwater peats developed over the clays, creeping upwards and blanketing the land; only the major streams would have survived uncovered. The eastern Fenland was also subject to marine incursion in the third millennium BC, with clays pushed up the Nar as far as Wormegay until renewed peat formation submerged the landscape from *c* 1600 BC. The whole eastern edge lay beneath peat by *c* 1000 BC, mostly now wasted away to expose the more adhesive clays.

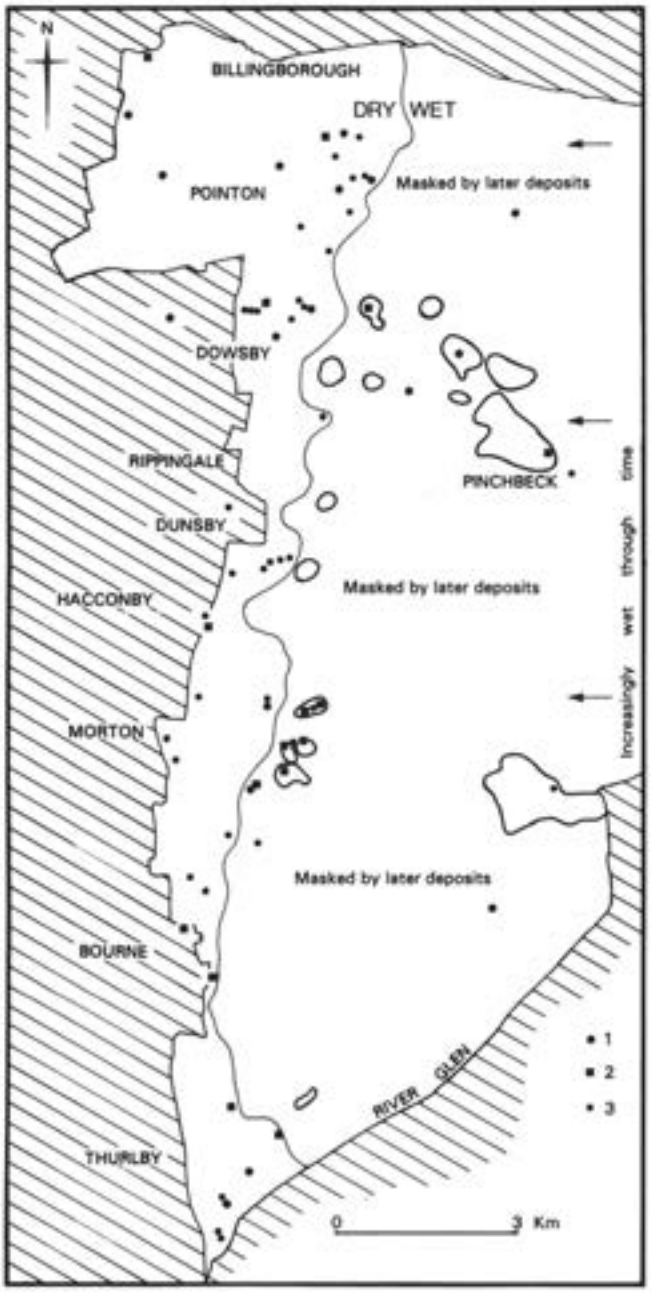



*Fig 40 The distribution of Neolithic and Bronze Age sites and finds along the south-west Lincolnshire fen edge; 1 Neolithic; 2 Late Neolithic/Bronze Age flint scatters; 3 Bronze Age; much of the contemporary surface to the east is masked by later deposits of clay and silt, with only a few patches of raised ground left uncovered; the heavy line from north to south represents an edge, with raised land to west, lower flood-prone land to east, thus marking the maximum extent of later flood deposits; the arrows on the right indicate that flood conditions were already increasingly present during the period represented by this map (based on Hayes and Lane 1992)*

## Distributions

The distribution of 'Bronze Age' material found in the surveys is shown on a map of *c* 2200–1500 BC; this gives the distribution of burial mounds and the spread of lithic material recovered during the survey (Fig 39). Some previously known sites are also included. Some of the lithic material is likely to be earlier in date, and was classified as late Neolithic to early Bronze Age by the field officers. Round barrows were probably constructed during this time, to become covered by freshwater peats and silts of the second millennium BC. Conditions depicted on the environmental map of *c* 1700–1000 BC (Waller forthcoming) show the increasing fen, and that of *c* 1200–400 BC (ibid) demonstrates the profound drowning of the land; many finds of metalwork, discovered long before the survey work began, lay in peats, pools, and streams, and special sites such as Flag Fen were constructed at this time. This late map suggests that settlement, particularly in the southern Fenland, was sparse; however, the metalwork must have had a source and it seems likely that some of the scatters of lithic material and occasional potsherds along the fen edge represent a potential origin of this activity. This poses a problem, however. The dated pottery of the south-eastern Fenland is consistently of the earlier second millennium BC, while the metalwork is mostly of the later second and early first millennium. Perhaps we cannot clearly identify flintwork of the later episode, and perhaps later pottery will have been destroyed by the plough or reduced to an unrecognisable state. Perhaps it was never there in the first place (see below).

One of the major problems in searching for patterns in the settlements of the later prehistoric periods is the incomplete nature of the evidence. This is an archaeological problem wherever one works, but in the Fenland, where we are led to believe that preservation is better than elsewhere, the difficulties are compounded by the obliteration of landscapes by repeated flooding, with peats and silts blanketing ancient surfaces. A good example is Pinchbeck North in the western Fenland (Hayes and Lane 1992, 110). Almost all of this survey area is covered by post-Bronze Age sediments; the Wash muds have submerged the whole landscape, crushing and eroding it while at the same time sealing parts forever. Across the Fenland here, a band of silt marks the channels of ancient watercourses that will have scoured away prehistoric remains and cut deeply into the underlying deposits. Outside the channels, however, there are wide areas of undisturbed sealed surfaces perhaps strewn with the debris of

former activities. That we will probably never see these exposed must lend an air of caution to any pronouncements about patterns of settlement in the Fenland. In terms of site catchments, all low-lying or rather lower-lying areas are lost.

Yet even in such black situations there can be the occasional glimmer of light. Well out in the fen, away from the fen edge and its visible and predictable traces of activity, there once existed a slight rise in the surface of the land, where Pinchbeck North joins Rippingale and Dunsby Fens (Fig 40). The ridge was of sandy soil and attracted late third millennium BC settlers who established farms and carried on their activities generation after generation. The remains of these occupations, so unexpectedly far out in the fens, consist of a considerable spread of flint artefacts and pottery, mostly of the Bronze Age (Hayes and Lane 1992, 112). Aerial photographs detect a circular feature, possibly ditched, which might be a burial mound. The flints are of the later Neolithic or earlier Bronze Age, and the pottery includes both decorated early and undecorated later Bronze Age forms. A tool of Group XX stone, originating in the Charnwood Forest area of Leicestershire, was probably imported in the early second millennium BC (Fig 41). Farming continued on the ridge for over 1000 years, under ever-increasing pressure as the surrounding fen became waterlogged, trees drowned, and marine-based flooding spread across the land. Saltmarsh developed and the ridge and its abandoned remnants of human occupation were submerged beneath sediment; only variation in the natural vegetation would have signalled the existence of the sandy ridge below. That the settlement persisted to the bitter end is suggested by the presence of a few sherds stratified within the encroaching clays just off the main scatters of debris; there is therefore every likelihood that some occupation deposits are sealed in waterlogged sediments, below the reach of the plough, and that good organic evidence of both environmental and cultural importance may be well preserved. That we will ever see it is debatable.

## Lithics and pottery

The material collected and observed during the survey of the second and early first millennia land surfaces consists of flints, pottery, metalwork, and briquetage; round barrows, some upstanding and some degraded, represent most of the earthwork monuments. There are a few exceptions, noted below. The lithic material forms a large proportion of the artefacts collected. Assemblages generally have various types of core including rough and undiagnostic pieces, flakes mostly broad and squat, and a mixture of later Neolithic and early Bronze Age tool types (Fig 42). These industries are marked on both the Bronze Age and Neolithic distribution maps (Figs 24 and 39). Lithic material more distinctly identifiable as of the early Bronze Age includes rough and often incompletely worked cores, a hard hammer flaking technique, broad short and thick flakes,

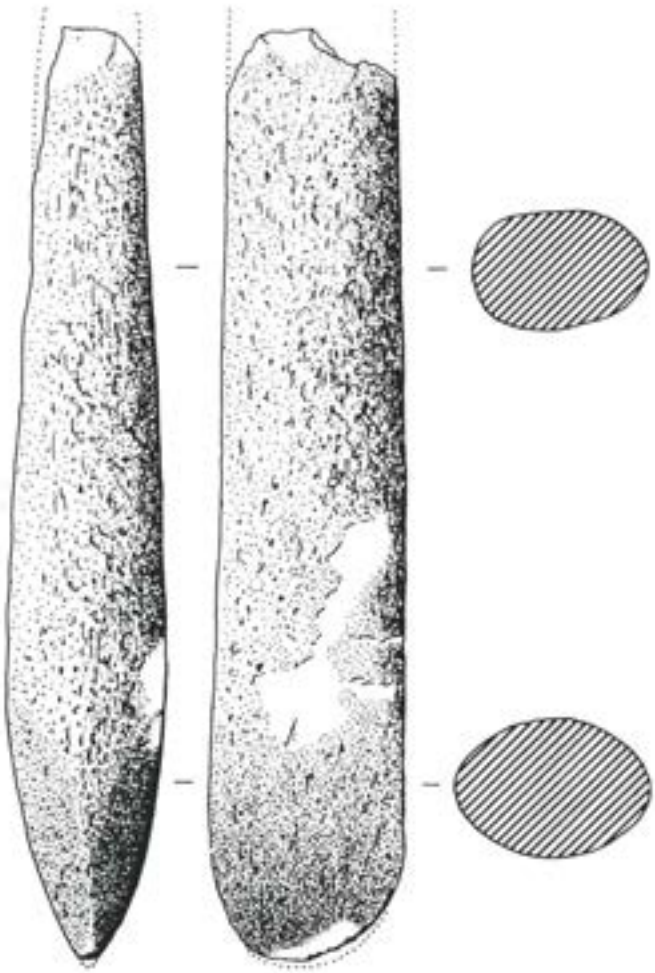


*Fig 41 Stone implement of Group XX (Leicestershire) from the Pinchbeck island; length 245mm; early Bronze Age (from Hayes and Lane 1992)*

*Fig 42 Flint knife from Wood Walton, highly polished; length 70mm; late Neolithic/early Bronze Age (photo: D N Hall)*

no blades, and denticulate worked pieces, along with thick scrapers formed by the removal of large flakes. In some areas of the Fenland there are also a large number of assemblages of mixed or undated lithics; in the Wissey embayment, most of these postdate a fen clay transgression and should therefore date later than the developed Neolithic. There is a high percentage of scraping tools in these collections, and in late Neolithic, Beaker, and early Bronze Age assemblages as well. Much remains to be done with all of this lithic material in digesting its unattractive features and identifying particular flavours and characteristics of different traditions.

The pottery recovered from the survey generally consists of wares which have undergone rapid disintegration through weathering. It can be demonstrated that an occupation surface exposed by the plough may contain unabraded 'fresh' sherds along with lithic material, but that a short period of frost or other intense weathering will reduce the pottery element very severely; after only a season or two all or almost all the sherds will have been destroyed or substantially reduced. Beaker ware may have a slightly better chance of survival than early Bronze Age pottery, but it is notable that most sherds are small and often abraded (Healy 1991, 128). Later Bronze Age pottery, of the western Fenland, can be more durable. Food Vessel or Food Vessel Urn sherds are mostly very fragmented and worn. A sample of pottery from the Wissey embayment survey was analysed by date and weight; of about 400 sherds, 150 were indeterminate for date, and their mean sherd weight was only 5g (Healy 1991, 131). Nonetheless the pottery recovered in the survey here and there provides a welcome chronological precision. Beaker sherds may date from *c* 2600 BC to *c* 1800 BC (Kinnes *et al* 1991). Early Bronze Age Food Vessel, Food Vessel Urns, and Collar Urns are often dated *c* 2200–*c* 1700 BC (Burgess 1986; Healy 1991); they may represent funerary deposits or domestic debris. Billingborough ware of the later Bronze Age is generally harder fired than early Bronze Age pottery. Fenland settlement sites with domestic pottery include Plantation Farm, Shippea Hill (Clark 1933), Newark Road, Fengate (Pryor 1980), Hockwold (Bamford 1982; Healy forthcoming), and the off edge Billingborough (Chowne forthcoming).

### Burial mounds

A major element in the distribution of Bronze Age activity in the Fenland is the round barrow, a monument type so well known throughout Britain that it hardly needs a description (Ashbee 1960 for barrow types). Yet Fenland barrows can be unusual in one respect. Elsewhere, round burial mounds generally survive as upstanding mounds plundered by antiquaries or looters or poached by farming activities, or completely ploughed-out monuments surviving only as cropmarks, with the surrounding ditch being most identifiable. The Fenland has plenty of the latter and very few of the former. What it does have, uniquely, are barrows totally submerged by flooding peats. Constructed originally on dryland, and subsequently drowned and buried, these monuments are broadly intact. Their presence is now detectable by aerial photography, by inspection of drainage ditches that have cut through mounds, and by the discovery during fieldwork of the tops of barrows just beginning to protrude above the surface as the softer land either sinks through drainage or is wasted away by exposure and wind-blow (Fig 43). The emergence of first one barrow, then several, then a whole cemetery of burial mounds, year by year as the survey continued, is one of the more dramatic episodes of the Fenland work (Hall 1987, 25). These monuments remain as the best source of evidence for Bronze Age burial ritual in Britain, and require urgent protection from continued exposure and decay induced by the desiccation and wastage of the organic soils.

## Settlement

The evidence acquired by the Fenland Survey for settlement and activity of the second and early first millennia BC is extensive and varied. Although this period is by tradition the 'Bronze Age', what emerged was a combination of sites and discoveries some of which are easily identifiable as traditional Bronze Age while others are much less adequately defined and understood. Fundamental questions about the economy, seasonal use of the fen, and activities concerned with the treatment of the dead and the disposal of wealth into the fen are difficult to answer. The patterns of life and death on the edge can only be gauged by a survey and overview of the evidence.

### The northern fen

Settlements of the Bronze Age form a characteristic pattern closely aligned along the margin of the fen (Fig 44). The Stickney ridge formed a peninsula bounded on both sides by waterlogged sediments. To the east, a series of creeks drained eastwards towards Wainfleet; to the west, a large stream carried water along the Stickney moraine edge. The shallower deposits of the East Fen area have not totally submerged small islands and ridges of the pre-Flandrian surface. A majority of the earlier Bronze Age sites consist of lithic scatters which may include and reflect late Neolithic traditions as well, so we are probably dealing with an episode of settlement of late third and early second millennium date (Lane 1993). Most of these sites lie on the margin of the fen, perhaps reflecting seasonal interest in the wet landscape, and many lie on low sandy or loamy ridges in the flood clays. A few stone and flint axes found near these sites probably relate to clearance of woodland in the moraine or upslopes, maybe for building passageways over the treacherous clays to the islands. Among the flint scatters are a number of pieces with serrated edges, perhaps reed-cutting tools, and from one site vegetable-based gloss survives on flints (Lane 1993). A site at Midville in East Fen lies on the end of a small sand

*Fig 43 A Bronze Age barrow emerging from the Fenland at Haddenham as the surrounding and covering peat dries out, sinks, and is blown away; another barrow is visible next to the tractor (photo: D N Hall)*

island only recently exposed and lying at about 0m OD, near the limit of the marine clay; the site may extend beyond the area so far exposed, as peat began to form over the island even before the marine incursion reached its maximum. The effect is worth comment here. The island, and another one adjacent, were occupied in the Mesolithic/Neolithic; only one survived for earlier Bronze Age activity, then both were extinguished by flooding. Both became peat-covered (with the occupation debris sealed) along with the surrounding land, before clay was deposited over the islands' surrounds but not on the islands themselves. The peat on the islands has wasted away as the result of drainage and erosion, but the surrounding clay-capped peats have not been as extensively reduced, so the islands have become hollows in the landscape – reverse islands.

Over on West Fen, west of the moraine, three lithic sites at East Kirkby lie on gravel ridges nearer the high ground and probably form a single major occupation of the early second millennium BC (Fig 44); over 600 flints have been recorded from the three scatters (Lane 1993). To the north of the moraine, where a stream issues into the West Fen, several small sand islands and promontories at Stickford were occupied during the same period, and here both flints and pottery remain to mark activity concerned with the watercourse and entry to the fen basin itself. The pottery is of early Bronze Age form and is among the oldest found in this area of the survey; a few Beaker and late Neolithic sherds are known from West Keal just to the north of Stickford. Of burial monuments there is little surviving other than a possible ploughed-out barrow at East Kirkby, upslope of the lithic scatters, and several cropmarks of ring ditches at East Keal, above Midville (Lane 1993). During the second millennium BC, East Fen underwent dramatic change and peat formation was extensive between the Stickney moraine, the northern fen basin edge, and the more southerly marine saltmarshes. This peat began to form by *c* 1700–1600 BC; thereafter inundation once again spread northwards and a north–south drainage pattern developed before once again peat formed over the clays and totally blanketed the entire area until 100 years ago. During this episode of rapid change in East Fen, settlement must have been difficult to sustain for long, and the earlier occupations at Stickford, beside the outlet to the great fen, vanished, to be replaced only by a single known site on a sand outcrop where mid second millennium pottery and flints were deposited. Of settlement even later in date there is little trace, although bronze axes representing woodworking activities are of both middle and late Bronze Age forms (Davey 1973; Gardiner 1980); the latter, and the occasional spearhead, remain as the sole indicators of later Bronze Age interest in the northern fen edge by the Stickney ridge.

West of the Stickney ridge and just south of Tattershall, the river Witham flows steadily towards the Wash. This is the middle valley of the river and the wide flatlands on its western side soon expand outwards below Tattershall. A small sample of the Witham valley was examined by the Fenland Survey in the light of the many sites and other discoveries notified by previous

workers. A number of barrows including several cemeteries lie to the north in the river valley at Barlings, *c* 10km east of Lincoln; most are low-lying, like the numerous barrows further south (described below), and appear to protrude through alluvium (Everson 1983, 15; Everson and Hayes 1984, 36). Nearby at Stainfield the barrows have been ploughed flat, as are those at Anwick farther south (Chowne and Healy 1983). West of Walcott more barrows have either been levelled or are partly protected by peat; one was excavated and yielded a crouched inhumation in a wooden coffin (Healey and Hurcombe 1989, 17). Upstream, the valley peats at Washingborough contained the redeposited debris of a late Bronze Age settlement (Coles *et al* 1979) and the valley as a whole is well known for the quantity of later Bronze Age metalwork dredged from its sediments. Several logboats are also known from the valley (May 1976; McGrail 1978). The importance of the Witham as a route through the northern Fenland and as a major landscape feature suggests that further survey is essential if we are to understand the character of the abundant discoveries made by fishermen, farmers, and dredgers (see chapter 10).

The Fenland Survey looked at a small area in the middle of the valley, at Dogdyke where the Witham meets the Kyme Eau at an island of gravel called Chapel Hill. Most of the dryland was covered by peat and alluvium in the third millennium BC, the peat forming *c* 2800–2000 BC, and the marine sediments present in some places by *c* 2200 BC. By the early Bronze Age the marine influence was dominant, with the Witham and its surrounding creeks depositing wide bands of inorganic sediments, sands and clays within the major watercourse, silty clays in areas of quiet water away from the channels. The levees built up along the river as it overflowed are wide and expansive. In this environment, where tidal flats and marshes covered the land and creeks and the river brought in freshwater to mix with the saltwater, ebbing and flowing, no settlement of any permanence might be expected. If any existed, or any structural remains of a temporary nature, such as fishing, gathering, or processing stations, their survival cannot be expected without some natural clearance of wide expanses of the overlying alluvium. Bronze Age interest in the valley itself is well attested upstream; the Dogdyke area lay near the zone of contact with the sea and traces of activity, although anticipated, have been sparse. The survey identified a partly submerged sand island with prehistoric flintwork on its surface. Subsequent excavation revealed traces of an extensive Bronze Age settlement (Lane forthcoming). The island, now truncated by a drainage ditch, was sealed by fen clay and then freshwater peats. The settlement must be of the late third or very early second millennium BC. Bronze Age pottery, flints in abundance, and ard marks in the soil suggest that here at least the ubiquitous 'lithic scatter' has a more positive meaning; whether the activity was permanent or seasonal remains to be determined.

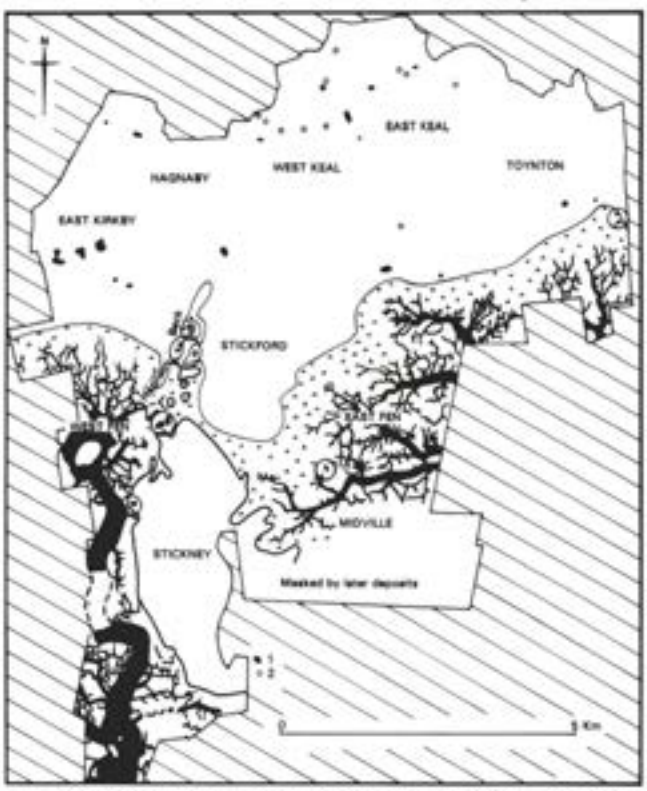



*Fig 44 Sketch map of the northern fen edge in the early second millennium BC, showing; 1 lithic and pottery scatters; 2 other finds; the contemporary fen edge is shown by a thick line, with the tidal saltmarsh creeks and the small Hagnaby Beck flowing into the West Fen; sites near the fen edge or on islands outside are circled for ease of identification (based on Lane 1993)*

## The western fen

The classic western fen edge extends from the upper reaches of the Witham valley down to the east of Sleaford, where the river Slea enters the lowland, to Bourne where the river Glen flows east to join the Welland near Spalding. Not all of the fen edge has been surveyed but a large sample, from Billingborough to the Deepings, has been examined (Fig 40; Hayes and Lane 1992); the southern border is the Welland, beyond which the Cambridgeshire fens lie. Over much of the area the early prehistoric land surfaces are buried, and many sites are expected to lie deep in the sediments; others will be exposed as overlying organic soils waste away. The survey extended its remit on to the lower slopes of the Jurassic limestone in the north, at Billingborough and Pointon-Sempringham. Some early Bronze Age sherds were noted during the excavation of a Bronze Age settlement at Billingborough but early second millennium finds are rather sparse in the area. Settlement at Billingborough began with the construction of an oblong bank and ditch enclosure *c* 1500 BC. Postholes within the enclosure were numerous, but extensive ploughing has destroyed most of the pattern; several four-post granaries were identified (Chowne 1980; forthcoming). Associated debris included bucket pottery with finger tip, slash, and cordon decoration. Some 600m to the east, pottery scatters indicate a contemporary settlement. It is suggested that the onset of flooding


*Fig 45 Map of part of the south-western Lincolnshire fen edge in the later second millennium BC, showing middle and late Bronze Age material: 1 flints and/or pottery; 2 bronze implements; 3 boat (based on Hayes and Lane 1992)*

caused these settlements to be abandoned, as peat formed over the land surfaces and alder carr developed (Hayes 1985, 245; 1987). Above the peat a marine-dominated environment caused the deposition of brackish water and saltwater sediments, drained by a network of creeks. This brought saltwater close to the Billingborough settlement which was re-established in the early first millennium BC. A squarish enclosure was constructed, and associated debris included finer pottery jars and bowls like those at Maxey to the south and Washingborough to the north. Saltmaking was carried out at the site *c* 800–400 BC. The settlement was abandoned several centuries later and replaced by an extensive field system.

To the south of this area, at Pointon, widespread scatters of later Bronze Age pottery have been noted along the fen edge and on a ridge now buried which extended into the fen (Hayes and Lane 1992, 43). Given the absence of any substantial earlier presence, the later second millennium BC may have been the first time when woodland clearances became extensive, with much of the land taken for cultivation and grazing. Immediately south at Dowsby, the Hoe Hills barrow group is probably of the earlier Bronze Age although they are unexcavated and mostly ploughed flat, with no finds reported (Hayes and Lane 1992, 70). Several stray stone axes may belong to this time, but otherwise settlement traces are slight. A few sherds of mid second millennium date were ploughed up from a buried site on the fen edge just to the east of Dowsby itself. Out in the fen, Bronze Age activity is unlikely; the area was heavily waterlogged and roddons mark the creek system that drained south-eastwards into the Haven. Surprisingly, a jadeite axe of the Neolithic period was found in this area, perhaps dredged up from the submerged land surface (Fig 26). There is a scatter of Bronze Age flints along the fen margin at Rippingale, and a tantalising spread of pottery just off the edge which emanates from a buried settlement (Hayes and Lane 1992, 76). Aerial photographs reveal a complex of ditched enclosures to the north of the site, which are probably Roman in date but might represent a fen margin settlement contemporary with Billingborough phase 1 (Chowne 1979, 246), but in this case protected from medieval and modern ploughing. Smaller settlements lie just on the fen edge, on gravel-sand spurs, and have yielded pottery and cattle bones. The Beck stream flows south of the spurs into the fen and would have been clogged by the marine inundations that deposited a light cover of sediments on the abandoned sites in the first millennium BC.

To the south of the Beck the fen edge undulates southwards through Dunsby, Hacconby, and Morton. The few finds predating the later Bronze Age suggest little activity before the mid second millennium BC along the edge, although a light scatter of flints at Dunsby and two ring ditches upslope might mark earlier occupation (Hayes and Lane 1992, 86). A settlement just on the limit of the marine alluvium must predate the maximum incursion; its pottery resembles that from Billingborough phase 1 and dates to the middle to late second millennium BC. At Morton, several sites with similar pottery lie on the fen margin (Hayes and Lane 1992, 121). Beyond the edge, a small island of sand, just in Pinchbeck parish, was discovered by the survey (see above); it contained a considerable spread of flint. To the south of the island the flooding silts lie over the

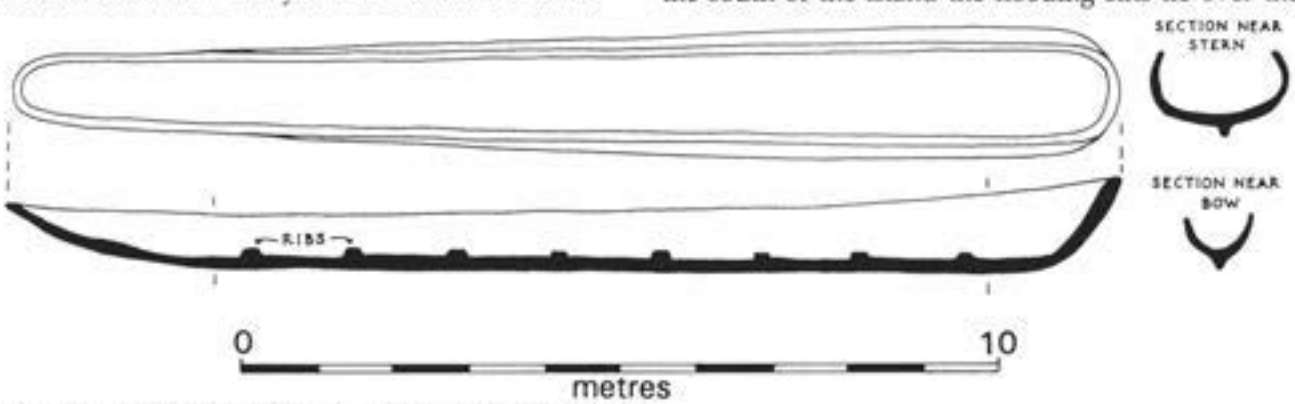



*Fig 46 Logboat from Deeping Fen; length 14m (from May 1976)*

North Fen and on to the course of the ancient river Glen and its tributary creeks, flowing towards an estuary at Spalding, today 15km from the sea.

South of Morton the line of the fen edge straightens and runs almost due south, passing just to the east of Bourne (Hayes and Lane 1992, 130). Very few finds of the early Bronze Age are known from the edge; they include several sherds, arrowheads, and a three-legged pot, perhaps Saxon rather than Bronze Age. Detailed palaeoenvironmental studies by Shennan (1982; 1986a; 1986b) have shown that the early woodland was drowned by freshwater peat, followed by alder carr and then reedswamp, succeeded by marine clays sealing the peats. The lower peat was terminated in the mid second millennium BC by marine flooding with a network of creeks and the ancient Glen and Bourne Eau (Fig 45). A settlement was established on the fen margin overlooking the creeks' headwaters at Bourne; the pottery ranges from Billingborough types into later first millennium BC wares. The site was heavily ploughed and a hearth along with daub was exposed and destroyed. To the south, at Thurlby, the marine incursions defined a peat-fringed promontory, formerly a terrace of an ancient river (Hayes and Lane 1992, 152, 157). The promontory, essentially a very low ridge, remains covered by later peats which formed from *c* 1100–1000 BC, sealing any occupation. To the south of this ridge is a settlement on a gravel knoll, again with pottery of Billingborough phase 1 type; in the first millennium the settlement was transferred nearer to the ridge and its debris includes friable pottery and, as a stray find, a bronze palstave.

The river Glen seems to mark some kind of boundary in the western Fenland. It flows southwards to the west of Bourne, is joined by a major tributary, and then abruptly turns north-eastwards into the fen. South of the river Glen and north of the Welland there is ample evidence of a major early Bronze Age presence along the margins of Deeping Fen and the Deepings (Hayes and Lane 1992, 182). A number of burial mounds are known as well as other finds of pottery and flints. A 14m logboat was found in Deeping Fen in 1839; it had a keel and eight ribs and looked rather sleek (Fig 46). The boat was used as firewood. The Market Deeping cemetery of five barrows (and more to the north in Baston and Langtoft) and the Deeping St Nicholas cemetery of six mounds are positioned very close to the edge, the latter on a small peninsula, and there are some solitary barrows between the two groups as well as some flattened monuments. They probably form a single cemetery of the later third to early second millennia BC, and represent a major discovery of the survey. The Borough Fen barrow cemetery lies only 6km to the south, and the Crowland cemetery the same distance to the south-east.

## Burial mounds

One of the barrows in the cemetery at Deeping St Nicholas was recently examined prior to its deterioration through dewatering (Fig 47; French 1991; French and Begg 1992). The monument had a complex history, and had been constructed on a later Neolithic settlement. In the early Bronze Age, a pit was dug to receive a young child shrouded in a wooden coffin, the grave marked by two posts and surrounded by eight concentric rings of stakes; no mound was put over this display for 20–30 years and the posts rotted *in situ*. Then a ditched barrow revetted by gravel was erected over the site. Later, this was surrounded by a ring of posts and an adult body was placed in a pit dug into the side of the mound; the body was buried in a shroud of some kind of textile, held in place under the jaw by four jet beads, ie probably a drawstring. Later, another adult body was put into the mound side, also in a shroud, and efforts were made to revet the mound sides. Finally the mound was enlarged to a diameter of 35m with a ring ditch around it, and four cremations were inserted, two in calcrete cists each with a bucket urn and cremation placed outside the cist. Another six cremations with collared urn pieces were put in small pits just outside the barrow edge. The mound was subsequently buried by peat and survived until ploughing began the irreversible destruction. It is important to recognise that this barrow, so elaborate in its history, was not distinguishable as multi-period, complex, or particularly well preserved in comparison with others near it or further away. That it revealed such a sequence of events, relating directly to the small communities of the fen edge and environs, must show that the Fenland Survey can only give us a smooth, even bland, impression of the succession of life and death over the centuries. The intimate details that bring us closer to understanding how and why societies worked as they did can only be revealed by further examination of monuments now identified by the survey and kept in their present state of preservation for future decisions (see chapter 10).

Beside the Deeping St Nicholas barrows is a contemporary site with pottery including Beaker sherds. Further pottery was found on two sites in Deeping St James positioned on a silt ridge well above the alluvium at the fen edge; the ridge was first occupied in the Neolithic and continued to be a focus of activity in the second millennium BC according to the pottery evidence. One of the sites was investigated in order to develop a management policy (Lane forthcoming). The Bronze Age occupation was partly sealed by alluvium, but plough damage was apparent. The settlement consisted of a number of circular structures, pits, and postholes, probably associated with Beaker-type pottery, though there were a few Iron Age sherds on the site. There was also a deep waterlogged pit with a wooden post and other objects. The site deserves preservation (Fig 61).

In the second millennium BC, clays and silts were laid down under marine and brackish conditions and much of Deeping Fen consisted of a complex system of creeks and river courses (Waller forthcoming; Hayes and Lane 1992, 184). No trace of human activity survives here; one barrow, surrounded now by marine clay, must have been constructed well before the incursion, which helps date the incursion. On the fen edge, apart from the ridge site noted above, there is little sign

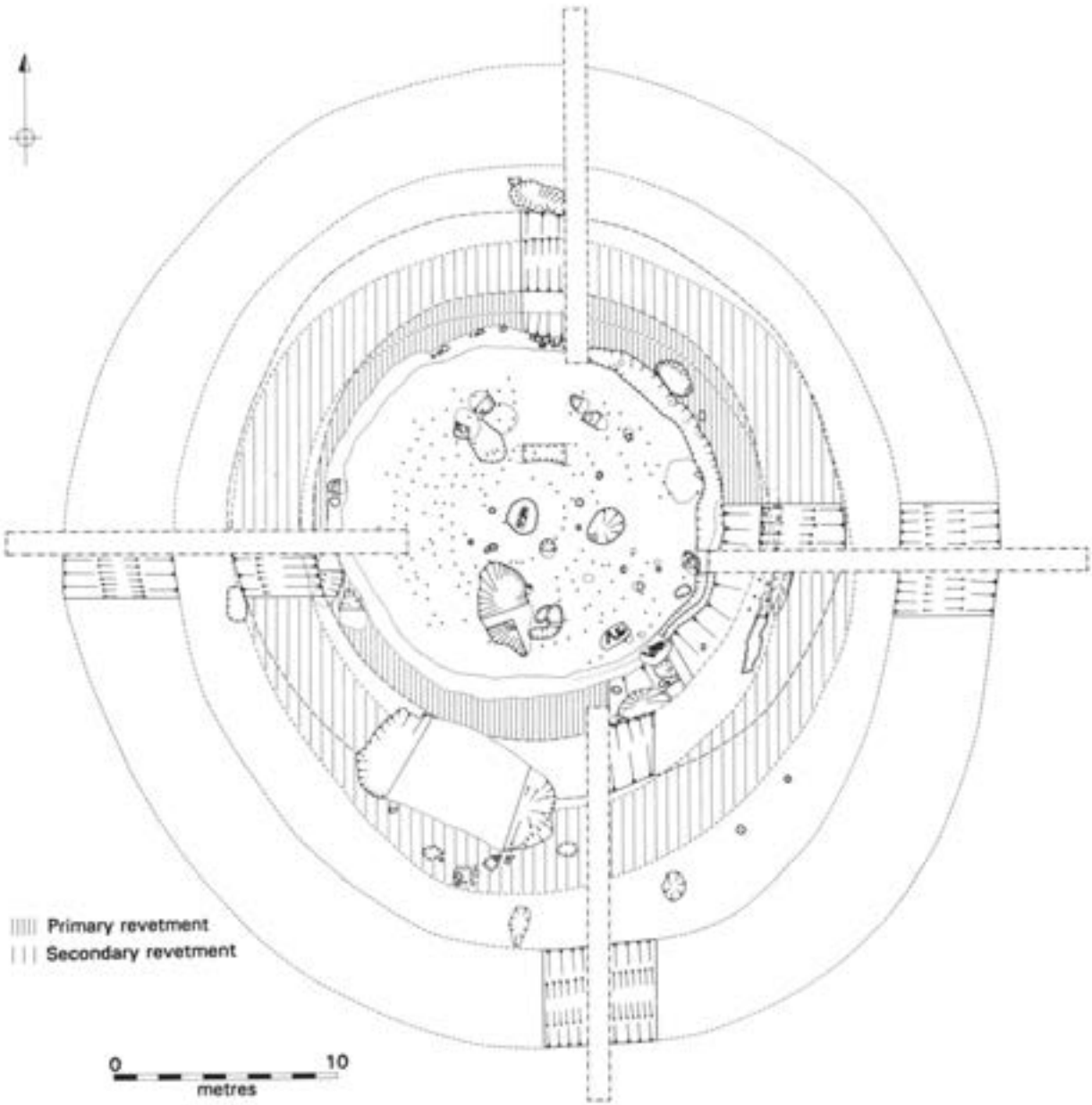



*Fig 47 Plan of the barrow at Little Duke Farm, Deeping St Nicholas, showing the central child inhumation, adult burials on the south-east edge, post and stake circles, revetments, and ditches (from French 1991)*

of any later Bronze Age activity other than a site in Deeping St James well inland from the fen edge; sherds of the early first millennium BC may mark one of the settlements pulled back from the fen margin during the active period of marine-based flooding and sedimentation (Hayes and Lane 1992, 186).

The Crowland peninsula stretches into the fen just south of the river Welland, and the Old South Eau flows out from the other side of the peninsula. Along the axis of the ridge there once existed an early Bronze Age cemetery (Hayes and Lane 1992, 197). One tumulus, demolished in 1880 according to the Spalding Gentlemen's Society, was 'one of a series which are situated in a line running directly northeast from the Abbey to the hill in Anchorage Field and southwest from the Abbey to the Steam Mill Lot'. This was one of the major cemeteries of the western Fenland, like those of the Deepings to the north and Borough Fen to the south, and among the finds made in and around the mounds 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'. Other mounds were destroyed later (Hallam 1970, 274–5) and only one survives, near the tip of the peninsula, with a medieval building upon it. Early activity on the ridge also included the digging of a great hollow some 4m across which contained a thick layer of 'pure black flint chippings' (quarried away in the 1880s). Crowland is the site of St Guthlac's abbey, and it is said that when he arrived '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' (quoted in Hallam 1954, 5). This might have been a Neolithic or Bronze Age tomb of impressive size (no trace remains, of course). The early Bronze Age cemetery and presumed settlement were abandoned in the second millennium BC when an active phase of

flooding occurred, depositing silty clay around the peninsula, drained by the ancient Welland and its tributary system to the north and by creek systems to the south.

For almost all the western fen edge, the absence of late Bronze Age settlement is a striking phenomenon; it may mark a withdrawal from the margin as the fen became increasingly unattractive for Bronze Age farming practices. Why this should be so is not at all clear. Flooding of brackish water, or freshwater, need not have caused the total abandonment of a system that had been established long enough for cemeteries to be created, clearances and fields maintained, and traditional patterns laid down. One possibility, of course, is that fen edge settlement was not abandoned but became archaeologically less visible. Friable pottery, a declining flint industry, a reliance on wood, an alteration in burial ritual from barrow to flat graves, and a use and strong curation of metal tools might leave little trace on eroded and wasted sites.

The barrow field in Borough Fen is perhaps one of the best known discoveries of the Fenland Survey (Fig 43). As noted above, it is a southern element in the great range of early Bronze Age cemeteries that stretched along the western fen edge between the Glen and the Nene (Hall 1987). In the early second millennium BC, Borough Fen was a 'lagoon'-like area of brackish water surrounded by fen. To the west of the embayment, on gravel and sand, a dispersed barrow field was constructed consisting of about 25 mounds (Fig 48); a linear pattern extends from the fen edge north-west for *c* 1300m, with barrows in groups of three, four, five, and four, and a few solitary mounds (Hall 1987, 21). A group of three barrows lies on the fen edge further north, and four more lie close together across the 'lagoon', with more further south in Eye parish. The diameters of the Borough Fen barrows are about 15–20m, and they rise through the peat *c* 0.2–1m, with one large isolated barrow 38m in diameter and 1.5m high. A modern ditch truncates one mound, showing it to be 22m across and 1.2m in height above the old land surface, with a ditch 1.5m wide and 0.5m deep; it had a turf core and gravel revetment. An aerial photograph of 1991 has revealed an extensive ditched field system near the barrows; because of the altitude of the land, this system cannot be later than the Bronze Age. The photo also revealed the long-lost ancient channel of the Welland river in pre-Flandrian times, flowing through the barrow field and to a large roddon dominating the Borough Fen embayment. The barrow cemetery was thus deliberately positioned near the Bronze Age river, with the whole landscape and relationship completely submerged by later peats, until first the tops of the highest mounds appeared, then more mounds, and now the ancient field systems and river course revealed by the photograph. This complex must be protected from further damage.

To the south of the estuary, more barrows were known although all are now destroyed (Hall 1987, 32). Excavations by Leeds in 1910–15 produced flexed burials with Food Vessels and flints, and a cremation. Apart from a couple of bronze axes found in the area, there is little trace of Bronze Age settlement other than an occupation debris near Eye with briquetage and quantities of very hard pottery like that at Billingborough phase 2 (Chowne 1979); this is probably of the early first millennium BC. A few cropmarks near the barrows on the west and south of the lagoon may mark traces of earlier settlement.

South of Borough Fen there is an extensive peninsula of land stretching across to an eastern edge at Thorney where further fen and an extensive creek and river system once operated (Fig 48). On the eastern edge of the Bronze Age peninsula 17 more barrows were constructed with three groups set close together on or near tongues of land projecting into the fen (Hall 1987, 49). Some barrows are now merely cropmarks, but others on the gravel-clay soils survive as earthworks, once preserved under later peats but now plough-damaged. A number of cropmarks have been identified and may represent contemporary settlement, perhaps paddock ditches for controlling animals *en route* to and from pasture. An enclosure of rectangular shape near the barrows may be the remains of a later Bronze Age settlement, with burnt stone and bone debris exposed. The absence of diagnostic later pottery suggests a Bronze Age date for this site. Another site, on a neck of land where the fen approaches from both sides, yielded some flints of Bronze Age character, and an oak-built pathway nearby may be related to fen exploitation. A few bronze axes and a mace head have been recovered from the area, and, further south, a Bronze Age salt-making industrial site was discovered during gravel extraction (Gurney 1982).

South of this area the Bronze Age landscape was much less uniform. A series of convoluted stream beds and looped channels created an environment that must have been fluid (both literally and metaphorically). One island within this landscape, east of Whittlesey, had a small barrow cemetery of three mounds and little else (Hall 1987, 56); across a very narrow fen, another has even less sign of Bronze Age interest except at the western end (see below). To the south, however, the fen edge was again selected for a cemetery of seven barrows, the Suet Hills group, now eroded by ploughing. They were 16–30m in diameter and several survived to a height of about lm. Beside them a cropmark of a wide circular ditch 110m across may mark a henge. It is tempting to see this group and all the others as individual settlement units, each with its territory of dryland, fen edge, fen, and perhaps either a major stream, river, or lagoon as a resource base for the management of an economy that could be maintained all year.

## Fengate and Flag Fen

The matter is more firmly focused in the second millennium BC settlements at Fengate, where an emphasis on herding and the control of animals through elaborate and extensive droveways and ditched fields suggests fundamental seasonal alterations of the economy (Fig 49; Pryor 1980; 1984a; 1991). Complementary use of the fen, fen edge, and upland is likely, grain was seemingly

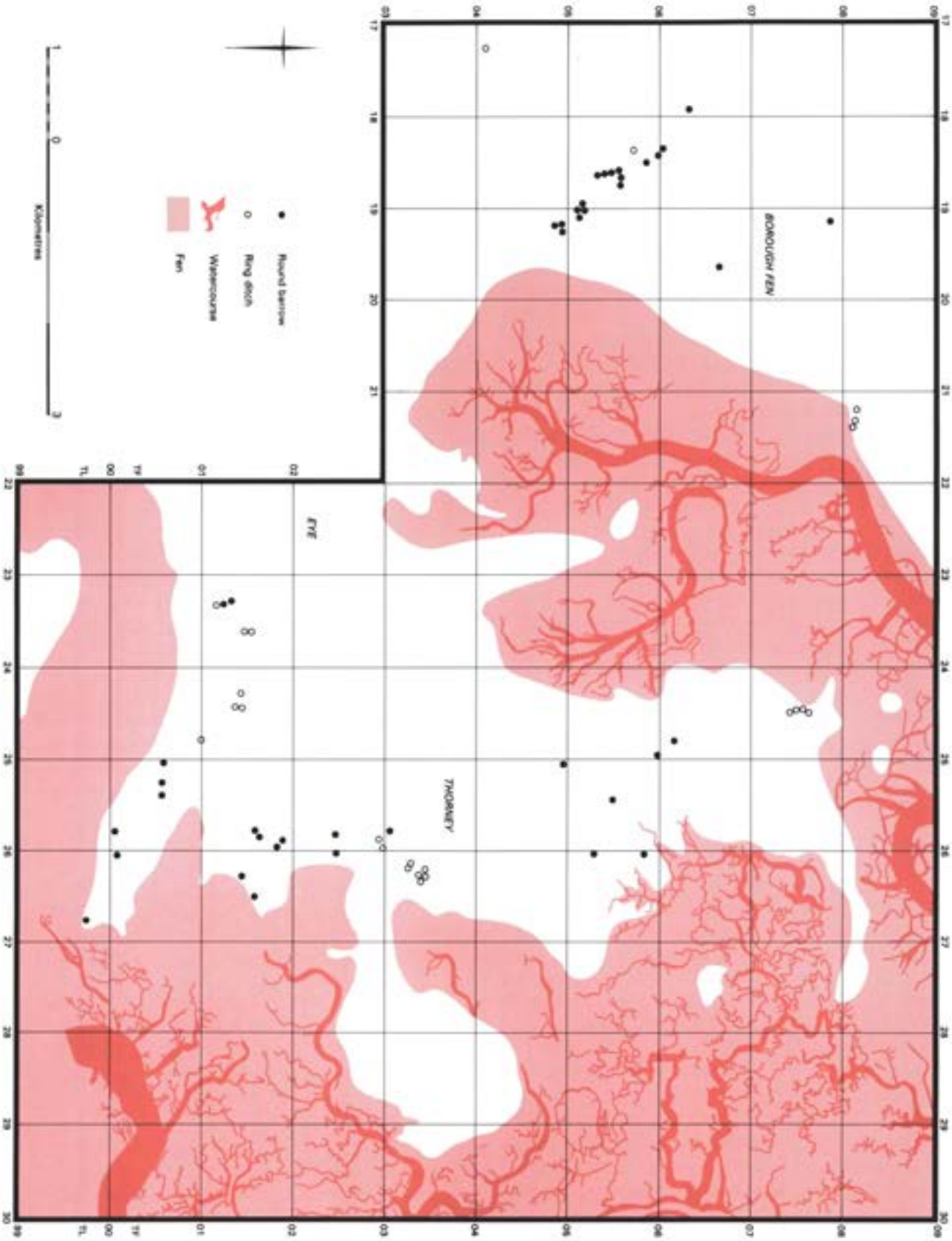



*Fig 48 Map of barrows and ring ditches in Borough Fen, Eye, and Thorney, with the contemporary stream and river systems*

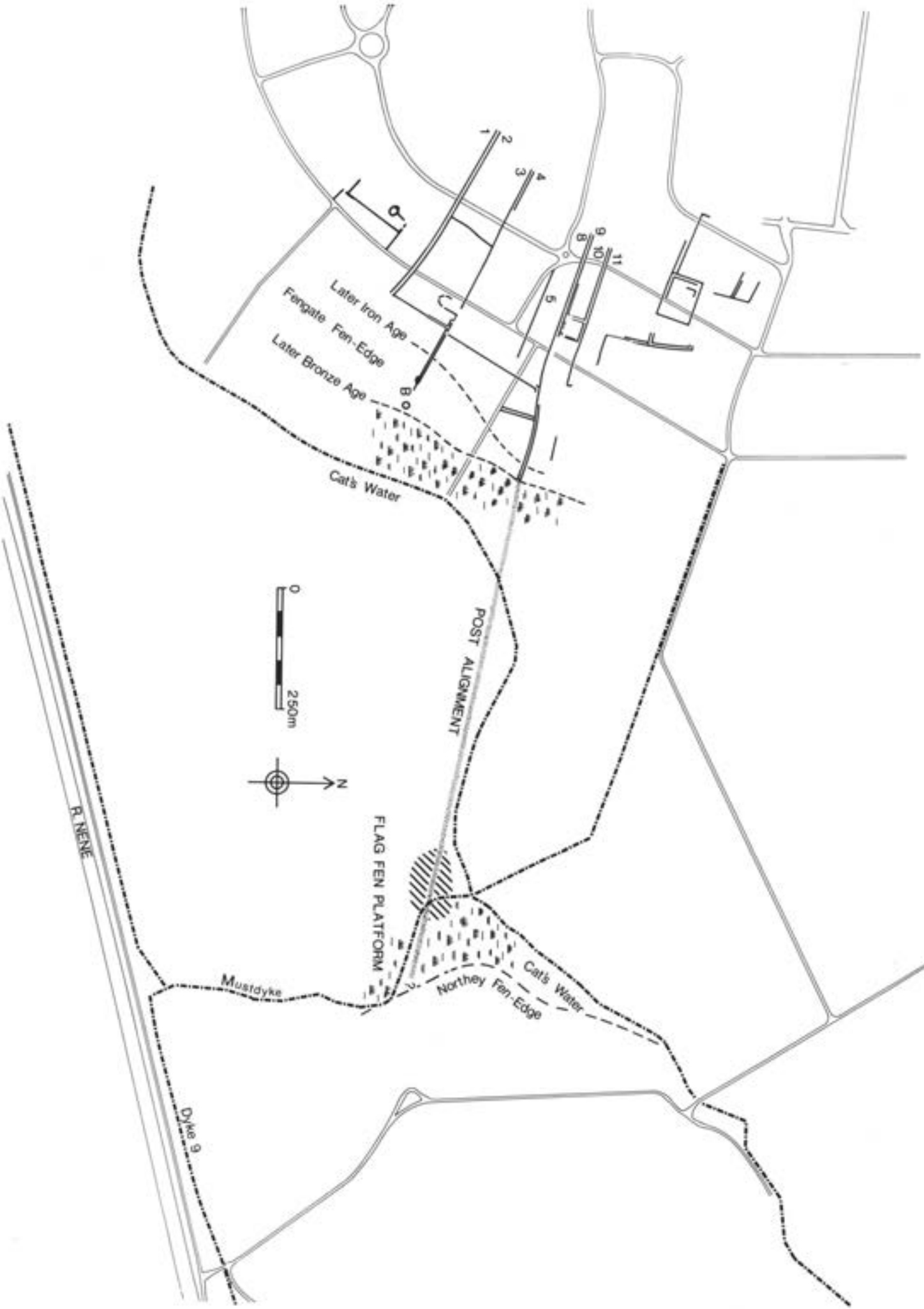
imported to the rather small shifting dwelling places, and the maintenance of the field systems was a major preoccupation over many centuries. Further insights into the complex exploitation and acceptance of changing conditions in the fen itself have been provided by recent work, in the discovery of the site now called Flag Fen. The fen lies between fen edge Fengate and Northey island (part of Whittlesea), and was found in 1982 in a programme of systematic checking of dike sections (Pryor 1991). The site is complex and consists of two main elements, an extensive platform built up of many layers and dumps of timber and roundwood, and an alignment of posts running out from the fen edge at Fengate across the neck of a narrow strait to an island at Northey and further upland beyond. This narrow fen marked the outer edges of two great river systems, the Welland further north and the Nene to the south. As such it must have been a particularly significant place, both for communication and with economic advantages in the husbandry of cattle and other activities.

A full account and explanation of Flag Fen is not appropriate here, but it appears likely that the platform held some major structures and performed important functions for the communities on the fen edge and island, perhaps seasonal and quite possibly ceremonial (Pryor 1991; 1992). A quantity of debris including pottery sherds and metal and stone objects, as well as much wood, signals the character of the activity. Along the alignment, which stretches for *c* 1000m, there were deposited large quantities of metal (Coombs 1992) as well as bone and other artefacts. The trees used to make the posts at both the platform and the alignment grew between 1363 and 967 BC (Neve 1992). There are a number of puzzling elements in this complex, but the current view, based on a wide range of environmental analyses and examination of some of the wooden components both on the platform and along the alignment, suggests a ceremonial rather than a domestic purpose. The Flag Fen embayment is a small one, only an outlier of the larger fen to the north-east. In the second millennium BC the embayment was a natural water meadow with only a small part open water, but was partly inundated during the winter. As elsewhere in the Fenland, conditions deteriorated over the centuries and flooding became more serious.

The platform itself was constructed from *c* 1350 BC, but built up over the centuries; its exact purpose is unknown but beetle and parasitic evidence suggests that domestic houses were not present, at least on that part of the platform so far exposed. The alignment of posts, up to 10m wide, runs from the Fengate paddock settlement of the second millennium BC across the neck of fen that separates Flag Fen from the open fen to the north-east, that is across the water meadow and open water to the island of Northey. It thus cut off the only access to the meadows from the open fen. The meadows were a crucially important part of the pasture system operated by the Fengate and other communities, with their droveways and ditched fields for winter grazing and husbandry of cattle, and their summer communal grazing of the meadows enriched by the winter floodwaters (Pryor 1984).

In the later second millennium, as conditions deteriorated, those communities practising systems such as this to the north-east, along the edge of the more open fen, found their patterns upset and great stress placed on their systems (Pryor 1992). The model proposed suggests that in the smaller Flag Fen conditions which were less extreme allowed the way of life to continue. The potential for conflict was there, and the Flag Fen community responded by erecting lines of posts across the access into their small world. Although this would not have physically deterred determined intruders, it probably made a very powerful impression on outsiders, reinforced for ritual purposes by the deliberate deposition of valuable offerings along the inner (home) side of the alignment. The platform marked a focus for these defensive acts, set in open water and with its own deposits of objects marking its ritual importance. The whole complex may have been, or became over time, more of a ceremonial performance designed to placate, or deter, the powers of the encroaching waters, rather than an open defiance of the outsiders, people dispossessed of their living and seeking new pastures. This interpretation of the platforms and alignment at Flag Fen is, perhaps, only one of several possibilities; it places emphasis on economic pressures created by environmental change. Alignments of posts stretching across bodies of water have sometimes been interpreted as passageways (supports for elevated walkways), seasonal fishing (salmon runs), or defensive systems (against land-based or water-based approaches), but the Flag Fen alignment with its deposits of metalwork and other materials is unusually complex.

South of the Whittlesey islands lies yet another area of land surrounded in the Bronze Age by fen; a couple of barrows, a cooking site, and stray finds show some activity in the early second millennium BC. The cooking site may be later in date but cannot be Iron Age or later as it was drowned in the later first millennium BC (Hall 1992, 22). Southwards lay a wide expanse of Bronze Age fen at Farcet with the upstreams of a network of creeks on the east which brought in brackish waters and silts, and the forerunner of Whittlesey Mere; this did not exist as a mere in the Bronze Age. Over the wet fen some activity took place, leaving a hoard of socketed axes and a few other finds including another cooking site at the fen edge (Hall 1992, 29). To the south in Wood Walton the Bronze Age fen edge is again very complex and there are only a few scatters of Bronze Age lithics on sites previously occupied in the Neolithic period (Hall 1992, 38). From here, the extreme south-west corner of the Fenland basin, a wide expanse of 'upland' feeds into the Bronze Age fen, its tip approaching the headwaters of an ancient creek system that must be the ancestral Nene. A logboat found at Warboys in 1910 probably was poled across one of these Bronze Age tributary creeks (Hall 1992, 49). On the Ramsey peninsula a series of barrows was constructed, none of them known to exist prior to the survey (Hall 1992, 42). They lie on


1
2
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A
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Later Iron Age
Fengate Fen-Edge
Later Bronze Age
Cat's Water
POST ALIGNMENT
0
250m
N
FLAG FEN PLATFORM
R. NENE
Mustdyke
Northey Fen-Edge
Cat's Water
Dyke 9

clayey gravel and were not detected by aerial photography. Although they lie only at 6m OD, this places them as a classic Fenland 'upland' site, with wide views over the fen itself to west, north, and east (Fig 50). Five barrows form one compact cemetery, each *c* 25m in diameter and 0.5m high, with two larger barrows nearby. Two other spurs of land poking eastwards had Bronze Age settlements represented by lithics including fire-cracked flints. Far to the west, across the fen, a tiny island had been selected for burial, a cremation with a Beaker, some time before the main early Bronze Age cemeteries were formalised.

## Central islands

The ancestral Nene separated the Ramsey peninsula from one of the major Bronze Age islands in the fen, which stretched *c* 9km south–north and *c* 3km west–east; it includes modern Doddington and March, and links on the east with another island (modern Wimblington and Manea). To the south is the major island of Chatteris, with rather narrow (1–2km) bands of Bronze Age fen separating them. The most northerly of these islands does not appear to have had much activity in the second or first millennium BC in its southern half as it was almost encompassed by the Nene tributaries, but there are signs of settlement along the edge of the island both to west and north-east; one of these flint scatter sites also yielded a bronze axe. Just over the eastern fen is Stonea, part of the Manea-Wimblington island, and here a small barrow field of four mounds was constructed in the early second millennium BC (Hall 1992, 67). Other barrows lie at the fen edge on tongues of land which must have provided good vantage points for the fen in almost every direction. Several Bronze Age settlements are known as well, represented by lithic scatters near the various barrow groups or solitary mounds. At one such site a hoard of five socketed axes was found some time ago (Salzman 1948, 279–303). There are over ten lithic scatters in the immediate area, ie the north of the island well away from any creek influence on the fen. Of the burial mounds, little is known apart from one excavated by Potter in 1961–2; it held two cremations, one an elderly woman with jet and amber beads, the other a young man with an urn (Potter 1976, 32–7). Details of the settlements are also sparse, although one later Bronze Age site at Stonea Grange had a round house 13m in diameter, and various ditches; pottery, flints, and bronze fragments were associated (Potter and Jackson 1982). Further south, towards Manea, Bronze Age settlement clings to the fen edge, and 3–4 lithic sites are known, including one on an expanse of sand (Hall 1992, 78). A single barrow, set on the western edge of the island, was excavated many years ago; five inhumations, and ten cremations (five in urns) were discovered along with beads and tools, all now lost. This island was probably cut into two halves – Stonea and Manea – during the later Bronze Age as peat fen crept upwards; the peat would also have separated Manea from the Chatteris island over to the south-west.

The Chatteris island provides strong evidence for Bronze Age activity (Hall 1992, 89). There are a large number of barrows, some lithic scatters, cropmarks, and a quantity of metalwork (Fig 51); most of the latter have imprecise provenances but they span the entire Bronze Age (Salzman 1938; Brown and Blin-Stoyle 1959; Coles 1962; Evans 1881a, 250; Fox 1923, 64). A rapier was found in a logboat near Chatteris before 1882; the boat is lost (McGrail 1978, 175). In the north is a small barrow cemetery with an associated banked enclosure and a linear ditch linking the site to other barrows. Along the southern edge of the island is a spread of barrows, with another group to the north. Three of the latter lie on Honey Hill and, although 'protected', they have suffered damage; the plough had exposed a decorated urn and other sherds when the survey was made in 1978, the pottery comparable to Haddenham vessels dated *c* 1600 BC (Longworth 1984, motif J5). Other barrows form small cemeteries of three to six mounds, most very severely damaged and with little or no record of any observations of structure or content. They seem to form a line across the southern island edge. Behind them and well inland were the contemporary settlements, identified now as scatters and concentrations of flints, occasional pottery, and sometimes cropmarks nearby. One or two may spread beneath the peat where preservation could be good. Cropmarks on two sites on the island centre suggest droveways with large rectilinear enclosures, possibly all part of one very large settlement which must belong to the second or early first millennium BC because of its altitude of only 2m OD. Just off the fen edge, out in the Bronze Age fen itself, a small island existed – North Fen island (Sutton) (Hall forthcoming). This was used for an isolated cemetery of burial mounds, probably related to the southern Chatteris complex. The ancient Ouse lay only 300–400m away and was brackish. There are at least five barrows on the island, and another one on a tiny sandy island off to the east. It is logical to see the larger island as a self-sustaining unit of territory, demarcated by burial mounds which thereby enhanced their 'upland' positions, constructed and maintained by a small community, or several, working the inland areas for pasture and perhaps arable, and utilising the fen for seasonal grazing and the collection of wild plants and animals.

## The southern fen

The southern point of the Chatteris island was cut off from the 'mainland' fen edge by narrow peat fens and an ancient river which probably formed a tributary of the Ouse, although its middle sector is uncertain.

*Opposite Fig 49 Map of the Fengate complex showing the second millennium BC fields and droves on the fen edge, the alignment of posts leading out to the Northey island, and the position of the timber platform at Flag Fen (from Pryor 1992)*

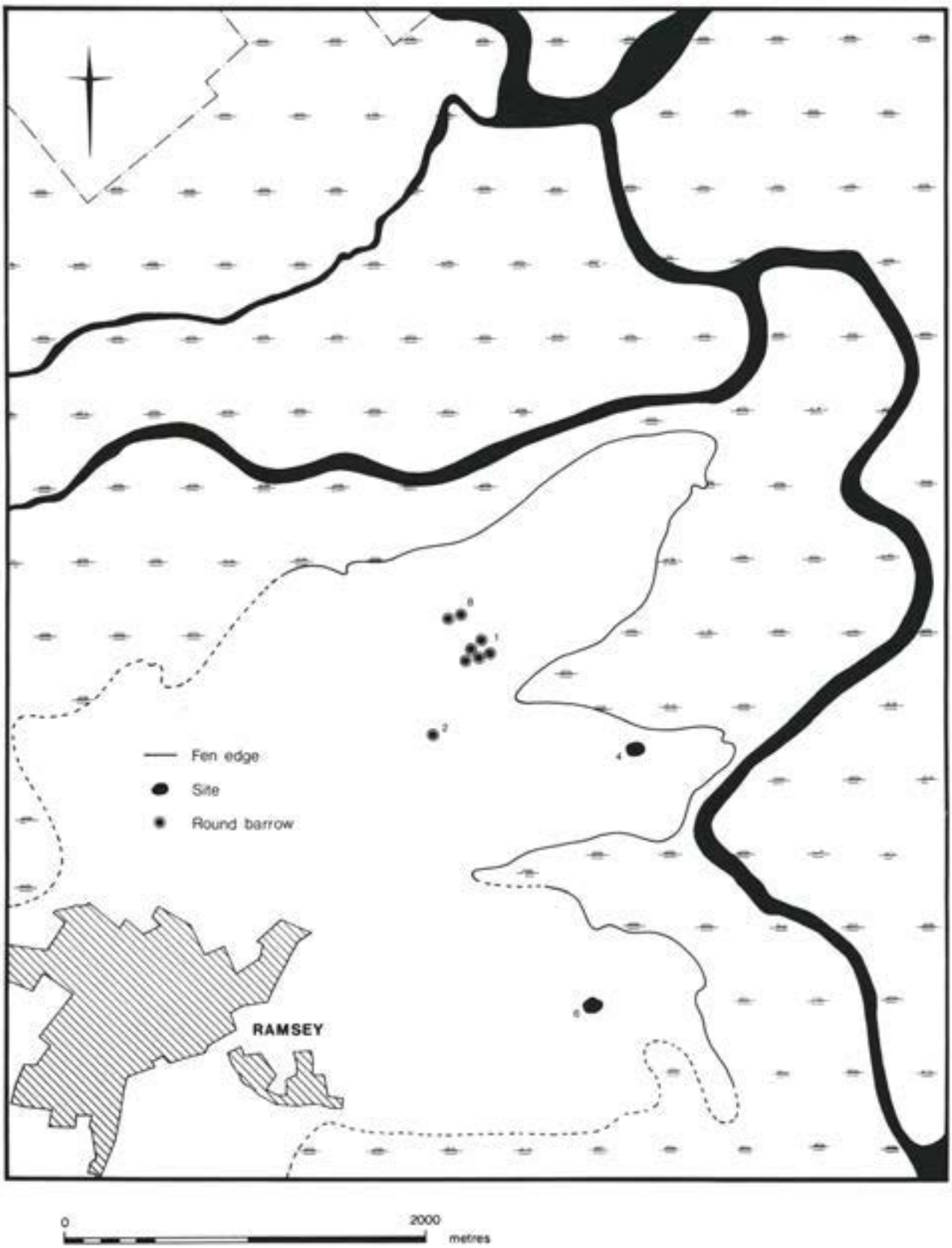



*Fig 50 Map of Ramsey showing the location of Bronze Age barrows (dot and circle) and lithic scatters (dark blobs) (from Hall 1992)*

In its upper reaches, peat fen developed in the valley with slightly higher ground to the east and south; peat fen on its western side was also extensive, although not fully mapped. Bronze Age activity took place along the edges of the fen proper, and particularly on islands in the fen.

A broad tongue of land at Over extended alongside the headwaters (Fig 52), and along its edge, overlooking the fen, a series of burial mounds was established, in two groups of four and seven. The barrows are large, 20–30m in diameter, and some are protected by alluvium. Further upstream more barrows are reported at Holywell, one of which yielded a barbed-and-tanged arrowhead of early Bronze Age type. The fen edge to the east of this complex has little sign of Bronze Age activity, but the island to the north of Over has a remarkable cemetery of barrows discovered by the survey; the linear nature of this probably related to the Over barrows noted above. Six mounds lie on the western side of the island, with three more on a smaller island to the north, beside the ancient river, and solitary mounds elsewhere. The barrows lie on raised gravel beds where the river entered the fen, and were soon covered by peat and then by alluvium. Two of the northern barrows are closely aligned with the long axis of the Neolithic long barrow (chapter 4). One of the southern barrows was truncated by a dike, which revealed a cremation in the side of the mound with a barbed-and-tanged arrowhead, burnt plano-convex knife, and a whetstone. Another cremation was placed beneath the burial. The barrow was 30m in diameter and is still 1.8m high. An adjacent barrow was excavated and yielded a collared urn cremation group including the bones of an adult male and additional small vessels. The bones represented a selection from most parts of the skeleton, neatly placed in the urn and covered by sweepings from the pyre. The burial was dated by radiocarbon to *c* 1600 BC (Evans and Hodder 1985; 1987). Another barrow, set on higher ground off to the east, had a bank revetment encircled by a ditch. Sherds from an urn lay in a burnt area beneath the mound, and the bank held the remains of a pyre with burnt human bone and timber. Secondary inhumations and cremations in the ditch filling were probably also of Bronze Age date (Evans and Hodder 1987).

In the immediate area was a rectangular ditched enclosure set within part of the Neolithic causewayed enclosure (Evans and Hodder 1987; 1988), presumably part of the second millennium BC activity that the barrow cemetery implies; otherwise there is little trace of domestic activity in the area, other than an occupation to the east in Cottenham parish adjacent to a barrow. The debris includes shell-gritted pottery probably of the late Bronze Age, similar to wares from Eye and other western fen edge sites. Across the wide neck of land joining the upland to the central island, only a few finds show Bronze Age presence; a barrow at Waterbeach and various cropmark sites show some activity, as do the discoveries of a palstave and three rapiers (Trump 1962). However, at Cottenham the survey identified a scatter of unusual pottery in a dark organic soil (Hall forthcoming); the flint and shell-gritted ware appeared to be of the first millennium BC. Upon trial excavation the site proved to contain a number of structural features, including fence lines, a subrectangular building, and four-post sheds, as well as some deep, waterlogged ditches or sumps. One of the latter had a post revetment and contained wood debris, including an oak plank and part of a wheel of ash boards held by oak dowels (Evans forthcoming). This site might well represent a major settlement; the great hoard of bronzes from Wilburton Fen was not far distant. Settlements of the later Bronze Age have not often been encountered in the Fenland proper.

Northwards of the neck was a major expanse of Bronze Age land surrounded by fen and with ancient stream courses of the future river Cam on the eastern side. The northern part of this landscape was deeply indented by fen (around Little Downham) and creek systems (Littleport area). The discovery in 1843 of a logboat 8m long with detachable stern board in Bronze Age peat in North Fen, Sutton, or possibly at Grunty Fen, Wilburton (Evans 1881b), suggests that watercourses were still open at this time. The logboat, 11m long, found in Turf Fen, Warboys (Fig 53) was near or on a marine clay roddon of the early Bronze Age; that stream was therefore probably still flowing in the early second millennium BC (Noble 1914, 143, 194). The chance discovery of arrowheads on roddons, possibly dropped from boats or lost during fowling, also suggests that a number of streams were still active well into the Bronze Age.

The western edge of the major landmass has few known Bronze Age sites. A barrow at Mepal and a settlement scatter of the early first millennium BC on an island at Way Head, Coveney make up some of the evidence (Hall forthcoming), but recent excavation at Wardy Hill, Coveney has revealed traces of a burnt mound of Bronze Age date (Evans 1992). This rather sparse evidence is supplemented by the discoveries of a number of bronze implements from the Coveney area. Several axes, a spearhead, swords, and two shields (Fig 54) were found in the peat at various places, and span the second millennium and early first millennium BC (Brown and Blin-Stoyle 1959; Trump 1962; Coles 1962); they probably represent ritual deposition of wealth in the watery fen or streams. Over the central part of the island, on a low ridge between Sutton in the west and Ely in the east, very little trace of Bronze Age activity is known, and on the heavy clayland of Ely there is little evidence of settlement, as heavy land was generally avoided in the prehistoric period. Sandy areas, however, have widespread but patchy scatters of Bronze Age flints, including sites on the lower slopes of the Ely island (Hall forthcoming). Below was the peat fen and an ancient river. In the fen at Stuntney a bronze hoard was found *c* 1939, consisting of about 80 objects buried in a wooden tub (Fig 55): axes, palstaves, a gouge, sword pieces, and ingots are of the later Bronze Age (Clark and Godwin 1940). Also out in the fen, the

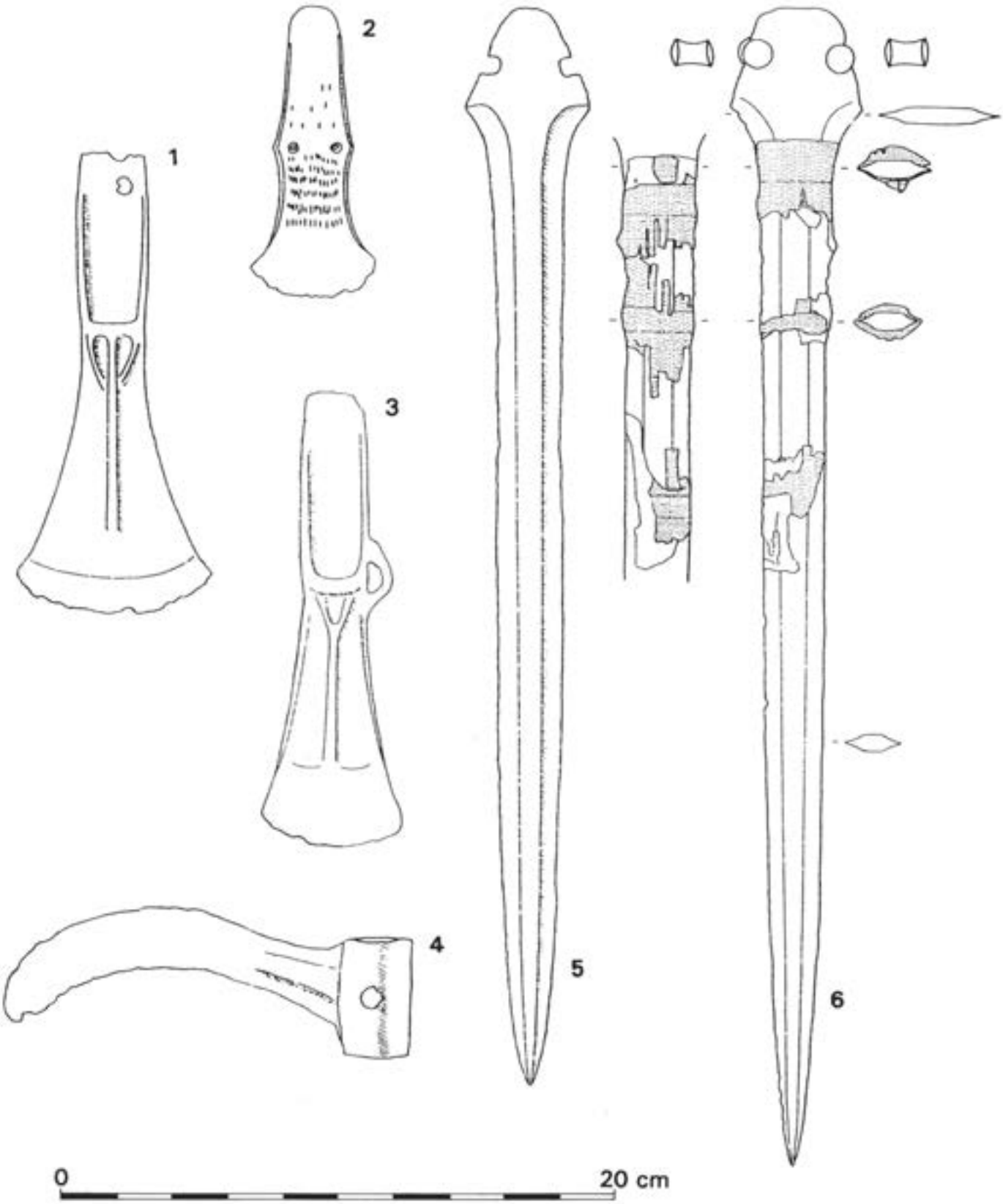



*Fig 51 Metalwork from Chatteris (1–2), Downham Fen (3–5), and West Row, Mildenhall (6); early and middle Bronze Age (from Coles and Liversidge 1965; Coles and Trump 1967)*

Grunty Fen, Wilburton hoard is slightly earlier in date; it was discovered in 1844 in an area of the fen reserved for the digging of turf by the poor. At about 1m down the finder exposed three palstaves and, as he continued to dig, a heavy gold torc, made of a coiled twisted bar (Fig 56), sprang out of the peat (von Hugel 1887; Taylor 1980). Nearby, the great Wilburton hoard of 163 pieces of bronze was found in 1882 lying on clay beneath 0.7m of peat (Evans 1884); there were 115 spearheads and various axes and other decorative pieces of the late Bronze Age.

In the Ely area, over on the eastern edge of the Bronze Age fen, a cemetery at Springhead Lane marks an early Bronze Age presence, with inhumations and Beaker

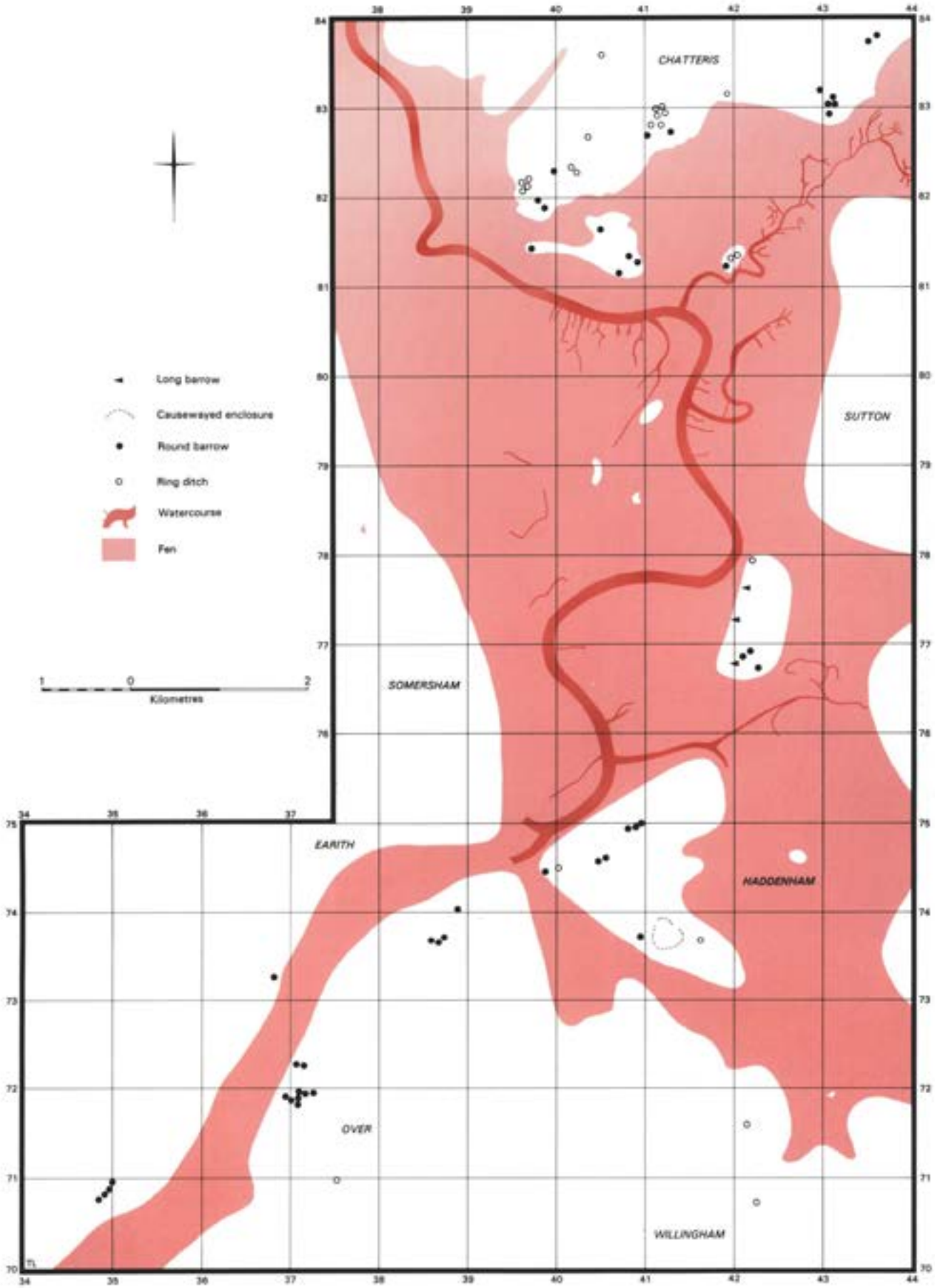



*Fig 52 Map of barrows and ring ditches in Over, Sutton, and South Chatteris; the black triangular symbols on the south Sutton island are long barrows (see chapter 4)*

*Fig 53 Logboat from Warboys, found in 1910 in Bronze Age deposits; this unusual drawing of it may be viewed from top or bottom (from Hall 1992)*

pottery (O'Reilly 1928). Nearby was a barrow, from which cremations in Beakers were recovered; in 1976 the survey recorded this monument as a cropmark and it was demolished without much further record by building works in 1986. To the south a major Bronze Age lithic site at Stuntney is on a sand ridge ideally placed for the fen and the river (Hall forthcoming). This evidence, patchy as it is, suggests that the Ely islands were the focus of a considerable amount of activity in the second and early first millennia BC, perhaps restricted to the operations of a small, self-contained community which exploited the high and low grounds, the lighter soils, the peat fen, and the river.

*Fig 54 The sheet bronze shield from Coveney Fen; diameter 525mm (photo: University Museum of Archaeology and Anthropology, Cambridge)*

To the north-west, a spur of land projects into the fen at Little Downham, almost cutting through to Coveney and thereby enclosing West Fen. The spur is elevated, reaching over 15m OD along its spine, and a lower ridge extends to Pymore in the north-west. Two small islands lie in the fen to the north. A few bronze implements were found in the fen, as well as several flint arrowheads, probably lost during fen waterway expeditions. Settlement scatters lie in the Pymore peninsula as does a presumed barrow, now ploughed-out (Hall forthcoming). The small island to the north had a settlement as well, yielding flints and a socketed axe. Further south on the main spur of land a cremation cemetery was discovered in 1929 during sand quarrying. Two complete urns were found in a pit, along with traces of burning and burnt bone; the pots were 'empty' (not surprisingly) and Lethbridge thought they had held food and drink for the deceased. Another pit nearby had the major part of the cremation, and others held vessels or cremations (Lethbridge 1930).

A spur of land lies at the northern tip of the Ely landmass, at Littleport, and may have been a complete island itself in the second millennium BC, bounded on

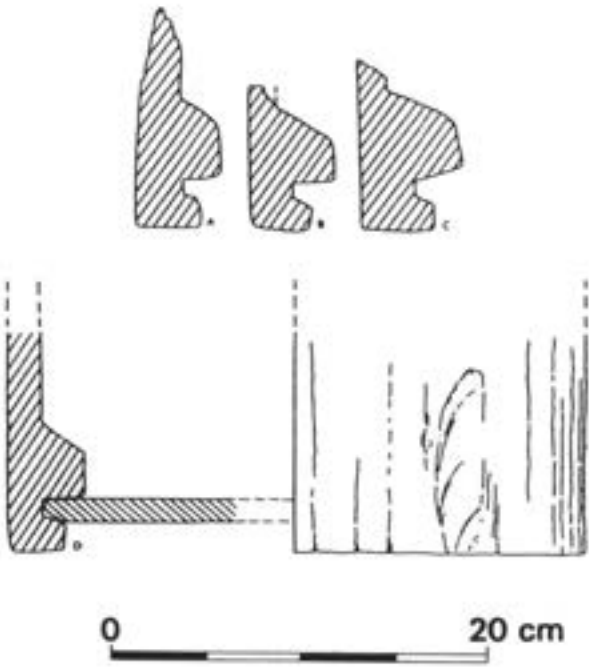



*Fig 55 The wooden tub of alder from Stuntney Fen, which held about 80 bronze objects (from Clark and Godwin 1940)*

the west by a now extinct dendritic creek system, mostly overrun by peat, and on the east by the ancient Little Ouse, itself partly peat-covered. The island has traces of Bronze Age settlement, and on a tiny island to the north, at Apes Hall, a few more flints were found (Hall forthcoming). Another island called Butchers Hill was occupied in the later Bronze Age, and many sherds have been recovered from the dark occupation deposit. On the eastern side of the river, set beside a tributary stream on a sandy ridge, was a settlement excavated by Clark in 1932 (Clark 1933). Sherds, bone, burnt flint, and stone tools including plano-convex knives and tanged arrowheads were recovered. An unusual discovery in Burnt Fen, not far distant, was a pit filled with Beaker potsherds and perforated antler butts (Edwardson 1966). Along the fen edge itself, east of the ancient river and the Bronze Age fen, other settlement scatters are known, part of a large series of Bronze Age settlements discussed below.

*Fig 56 The gold torc from Grunty Fen (photo: University Museum of Archaeology and Anthropology, Cambridge)*

## The south-eastern fen

At the south-eastern edge of the Fenland there is a peninsula running deep into the fen at Soham and Wicken. The Bronze Age land was split into two arcs by the low embayment of Soham Mere. Most of the Bronze Age evidence consists of barrows or ring ditches; about ten are known (Hall forthcoming). The only settlement is on Broad Hill, Soham, where much Neolithic material was noted; one of the sites is entirely Bronze Age and another has Bronze Age material within a Neolithic scatter. The latter, at Eye Hill Farm, Soham, yielded a very large assemblage of worked flints by grid-walking (Evans forthcoming), most of it of the early Bronze Age. As well as barbed-and-tanged arrowheads, scrapers, and awls, there were many burnt flints including burnt worked material, not merely potboilers. Fragments of hearths and burnt stones suggest that this is a settlement site. Excavation demonstrated that ploughing had removed any shallow features on the site, but an extensive ditch system was revealed, not visible on aerial photographs. A couple of unprovenanced hoards of bronze objects are known from the area, including one with swords and spearheads of the later Bronze Age (Salzman 1938, 279), and a gold torc was discovered near the edge of the former mere. In addition to the occasional find of flint, metal, or pottery, a wooden trackway 800m in length once ran between Fordey and Little Thetford, with associated sherds of later Bronze Age pottery (Lethbridge 1935; Lethbridge and O'Reilly 1936). To the south of Wicken, where a wetland reminiscent of certain ancient conditions is maintained by pumping (in not out; and see Fig 100), Bronze Age activity is known from the Swaffhams, although it is in no way as abundant as the Neolithic sites; a number of barrows and ring ditches survive, showing some early second millennium presence in this southernmost area of the Fenland (Hall forthcoming). Eastwards, to Snailwell and Chippenham, there begins a flow of Bronze Age sites that stretch northwards into and along the eastern fen edge towards the Wash.

In the south of this area the river Snail flows out of the chalk to form small fens and, apart from a few earlier lithic sites, the first settlement to be well represented is of the second millennium BC. Barrows are prominent on the heathland, and several groups are known to have existed, some of which were excavated in the 1930s. A linear cemetery of four barrows lies in the south; excavations of two revealed flint pavements and cremations (Leaf 1940). The largest barrow was 43m in diameter. A natural mound, destroyed during roadworks, contained inhumations, a Beaker, a copper cylinder, and flint flakes knapped on the site (Martin 1976). Other barrows, located between the cemetery and a lithic spread, were examined at Chippenham before being quarried away (Leaf 1935b; Ashbee 1960, 64). One was a disc barrow over a primary inhumation with a bronze dagger, an axe-hammer, and potsherds; a penannular ring of postholes had been dug around the burial. A Beaker settlement on a low bluff overlooking a stream

preceded the construction of another barrow, used later for cremation graves (Leaf 1940). To the east, some sort of bronze foundry was discovered during gravel digging in 1884–5; charcoal, bronze lumps, pieces of swords, and pottery or mould fragments were found along with a complete sword (Prigg 1888; Fox 1923, 59). In Snailwell, to the south-west of the Chippenham barrows, another cemetery of the early Bronze Age was excavated by Lethbridge in 1940 prior to the construction of an aerodrome (Lethbridge 1950). Ten mounds existed, containing cremations and inhumations; of 32 cremations, 28 were without urns. One barrow had cremations associated with ten bone pins, two bone tubes, one bone awl, three flint knives, and an antler piece.

The settlement debris contemporary with all these burials is more elusive, although the survey recovered lithic material of the Bronze Age from about ten sites north of the linear cemetery, all situated close to water, including the Freckenham brook (Hall forthcoming). Further north the true fen is still thin, and the fen edge or skirtland at Fordham lies adjacent to separate patches of fen, the whole dominated by the valley of the Snail. Light soils of chalk or sand provided suitable settlement areas, particularly near the old channel, and Bronze Age scatters occur in some abundance; only flint and fire-cracked flint survive as the pottery, once exposed, rapidly disintegrates. A barrow and two ring ditches probably represent outliers of the Chippenham cemeteries. A settlement scatter at Fordham Moor may be related to a nearby circular earthwork 70m in diameter with a 'tail' of an extra 50m, of unknown purpose. Near one of the sites some later Bronze Age metalwork was found, and there are other hints that activity throughout the period was more intensive than the few burials and lithic scatters indicate at present. Once again, the friability of Bronze Age pottery, the covering of later sediments, the wastage of peat, and deep ploughing have eliminated much of the record.

The chalk fen edge sites continue into Isleham which lies near the extreme south-east of the Fenland basin, just where the chalk ridge begins to turn and sweep north. The ancient Snail and the Lark streams had a confluence, now hidden, near Windy Hall just north of a peninsula with 'offshore' islands in the fen. Although large quantities of Neolithic scatters occur on the ridge and in several islands (Fig 29), Bronze Age evidence is much more sparse (Hall forthcoming). An early Bronze Age settlement lies on the peninsula above the level of the earlier sites, marking the inexorable rise of the fen; Beaker and early Bronze Age pottery was found in several exploratory trenches (Clark 1936a; C Shell, pers comm). A few stray finds, flint daggers and flakes, bronze dagger and palstave, are reported from the area. But south of the peninsula, near a couple of Bronze Age scatters, the largest hoard of bronzes ever found in Britain was uncovered; its precise find spot was not recorded. The metal had been placed in a pit dug into the chalk and consisted of about 6500 pieces weighing 95kg (Britton 1960). The objects included swords, axes, palstaves, knives, decorative fitments, and fragments of sheet bronze, all of the later Bronze Age; casting jets, mould fragments, and over 2600 pieces of slab-cast metal, as well as broken artefacts, indicate that this was a scrap hoard destined for remelting and casting, unless it represents some ritual act of destruction and deposition.

## West Row and Mildenhall

The eastern edge of the Isleham peninsula is bounded by the Lark with its peat-clogged valley. On its eastern bank the light soils of West Row and Mildenhall formed a fertile fen edge; to the north the Lakenheath fen edge is truncated by the Little Ouse as it emanates from the upland (Fig 35). This small area between the two rivers has a remarkably concentration of Bronze Age sites, with very few burial mounds recorded and many quite extensive settlement scatters (Martin in prep a). These consist of a range of material most often including flints, bones, and pottery. In addition there is a large quantity of Bronze Age metalwork, mostly found as isolated objects but well spread over the landscape of settlement scatters, apart from one fen edge concentration noted below.

The material that is taken to represent settlement debris consists of concentrated spreads of flints, burnt flints, stone, non-human bone, and pottery; the pottery is generally of Beaker or early Bronze Age character. The fen edge itself is fragmented into numerous tiny promontories, embayments, and islands of sand which in the later third and early second millennium BC would have been edged by fen. The sand ridges are not of uniform height and would have presented changing expanses of light soil, mostly diminishing, through the second millennium BC. Over 100 sites have been identified in the Mildenhall area, with a few more further north at Lakenheath. Collectors have been active and not many sites have been excavated, but nonetheless there is important dated evidence from some sites. A typical site, at Fifty Farm, was examined in 1934 (Leaf 1935a; Gibson 1982, 154). No structural features were found but there was much Beaker rusticated pottery, bones of sheep, cattle, pig, and deer, many flint tools, including over 100 scrapers, and a few arrowheads and knives; the site was dated *c* 2250 BC.

A somewhat later settlement was examined at Hayland Drove by Clark in 1935 (Clark 1936a); the site lay near the Lark on a sandhill, and sherds of biconical urns as well as a few of Beaker form, flintwork, and bones of deer, cattle, sheep, pig, and dog were found. Further fieldwork has added to the site's area and augmented the artefact collection. A large settlement only a few hundred metres inland was spread over a wide area, and early surveys yielded quantities of flintwork, bones, quern pieces, and Beaker and collared urn sherds; excavations by Martin showed that most of the site had been destroyed by ploughing, but an area on the edge of the sand ridge, where it dipped down into peat, still had some small pits and hollows. The material recovered consisted of urn sherds, flint tools, arrowheads, bones, and carbonised barley and emmer wheat.

The site was dated by radiocarbon to *c* 2000–1700 BC. This shows that many of the 'lithic scatters' found all along the fen edge are probably the only residue left by wastage of the sealing peat, the ravages of the plough, and the exposure of fragile remains. A small site next to the river where burnt flints were noticed yielded traces of small pits and a large cooking pit associated with charcoal which dated to *c* 2100 BC.

The excavation of a similar site, positioned on a chalky sand spread around which the present river curves next to Swale's Fen, demonstrated that the burnt flint spread was associated with a wooden trough, with alder log floor and withy lining, dated to *c* 2200 BC (Martin 1987; 1988). And perhaps the most interesting site examined lay next to the site excavated by Clark in 1935. The recent work at West Row Fen, by Martin (in prep b), showed sandhill occupation in the early Bronze Age *c* 1700–1500 BC (Fig 57). The settlement had at least one round house 5m in diameter, and probably several others, large water pits or shallow wells, pits with domestic debris, pits used for flax retting and antler soaking, a charcoal clamp, and spreads of collared urn sherds, biconical and Beaker vessels, many types of flint tools (scrapers, borers, knives, saws, arrowheads), stone mace heads, hammerstones, querns, and rubbing stones. Bone and antler tools included pins, awls, spatulas, and a tanged dagger and macehead; bone and jet beads and jet toggles were found. Animal bone was plentiful, with cattle dominant, also sheep, pigs, and dog, and a few deer and fish bones. Emmer and spelt wheat, barley, and flax were grown. Environmental evidence indicated conditions of scrub and wet woodland, and wet grass tussocks nearby (Martin and Murphy 1988).

The distribution of these settlements is firmly tied to the river edge and the sand islands, all forming a fen edge bounded by the river to the south-west and an ancient creek system to the north-west; behind and to the south stretched fertile sandy soils (Fig 35). A cluster of settlements formed over time just to the west of present West Row village and must represent a decided preference for a location where the river, fen, and creeks provided important parts of the resources required for continued occupation; behind and beyond were fertile soils for cultivation and grazing on a seasonal basis using upslope and downslope pasture.

There is very little evidence from this area for burials of the Bronze Age. A few human bones on some of the sites may represent the remnants of exposed bodies, but distinct traces of barrow burial are few. Three barrows were destroyed in 1866 at Three Hills in Mildenhall Warren, east of the fen edge, and other barrows of the early Bronze Age are known well inland (Lawson *et al* 1981). The Three Hills barrows were first noted in 1734, and had already been trenched. In 1866, in the course of their destruction, a heap of 18 red deer antlers, prongs upwards, was found at the centre of one mound. These covered an inhumation with a Food Vessel.

The scarcity of burial mounds on the fen edge in Suffolk has led to the suggestion that the fen was only seasonally used (Martin 1976, 12). The Breckland behind has abundant barrows, as does the upland behind the Wissey embayment (Lawson *et al* 1981, fig 5). However, the hummock and hollow landscape of the fen edge provided natural barrows for Bronze Age people, just as natural chalk mounds in Chippenham were used for burials, and a fen hillock at Mepal as well (Fox 1923, 37);

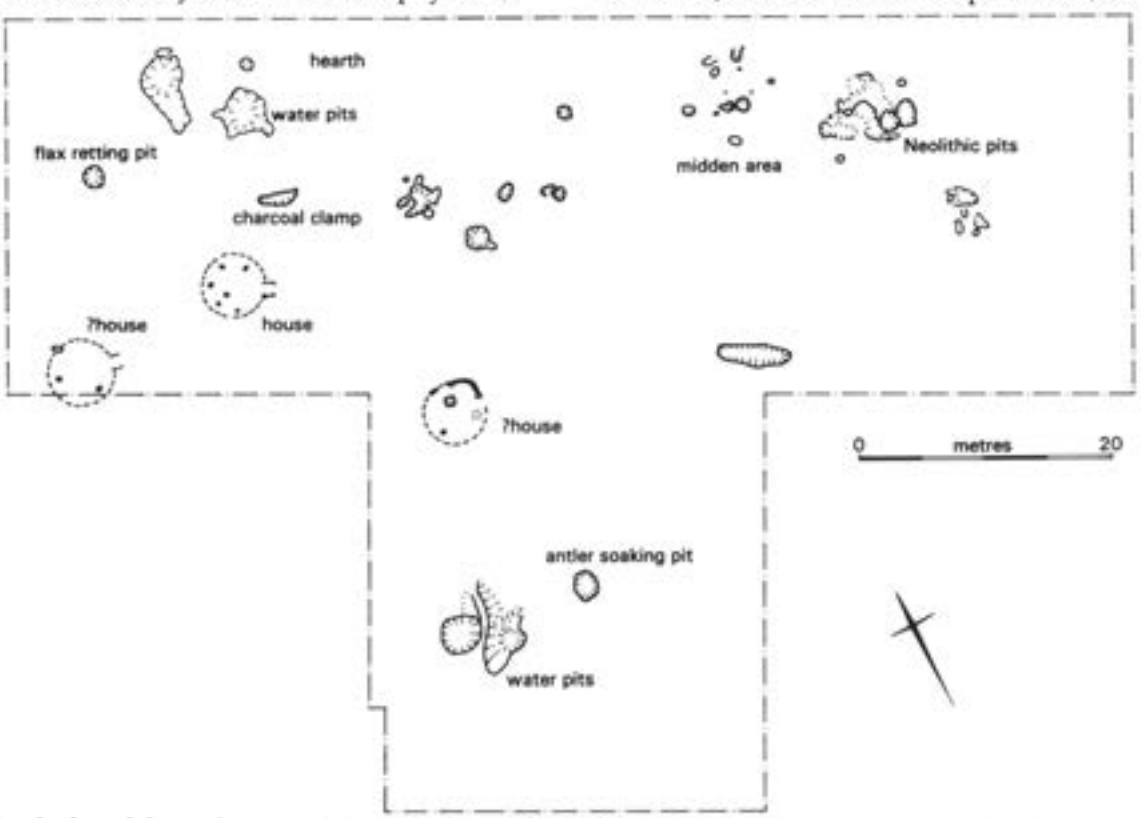



*Fig 57 Sketch plan of the settlement at West Row Fen, Mildenhall; round houses, water pits, charcoal clamp, flax retting pit, antler soaking pit, and other features are shown (based on Martin and Murphy 1988)*

fen edge mounds and ridges were used in this way too. Curtis excavated 30 burials from Lower Hill Close in Feltwell, apparently of the early Bronze Age (Healy forthcoming; see also chapter 10).

More evident than burials is the metalwork of the Bronze Age. At Eriswell, just inland of the settlement scatters at Wilde Street, a small hoard was found in 1954, apparently set within a packed layer of burnt flint and soil. The objects included various sword and rapier types, and fragments of sheet bronze and the tip of a flesh hook were found nearby. The hoard is probably of late second millennium date (Burgess 1968; Rowlands 1976; O'Connor 1980). Most of the other 40 or so bronzes from the area are isolated finds; they include only three or four early Bronze Age types, and equal numbers of middle and late types; the range includes axes, palstaves, rapiers (Fig 51), swords, spearheads, and various other tools. The distribution of these artefacts is similar to the settlement scatters; where there is a block of occupation, there is a close scatter of bronzes and the major spread of metal lies close to the fen edge and the Lark. They must surely be exactly contemporary with the settlements, and represent either real losses during use or storage or deliberate disposal in the watery fens adjacent, in places, to some of the settlements. If either of these suggestions is correct, it suggests (again) that some of the lithic scatters are of the later Bronze Age, and not only restricted to the earlier period.

## The eastern fen

To the north of the Little Ouse, where it breaks out of the upland and flows due west into the Fenland basin, the fen edge runs south–north through present-day Hockwold, Feltwell, and Methwold. The river Wissey forms a northern border to this region. The island of Hilgay-Southery lies out to the west, beside the present Wissey and once bounded on the south by an ancient channel of the Wissey and then by an ancient creek system that once slowly drained the whole embayment (Silvester 1991, fig 47). There is a linear spread of lithic scatters along the whole fen edge from the Little Ouse to the Wissey, most of them dated to the later Neolithic or early Bronze Age; these have been discussed in chapter 4 and need be only briefly summarised here (and see Bamford 1982; Cleal 1984; Silvester 1991; Healy forthcoming).

Along the north bank of the Little Ouse, several sand islands were occupied in the later third and early second millennia BC; most of these have early Bronze Age pottery as well as flint. One sandhill at Decoy Farm was grid-walked during the survey and yielded late Neolithic, Beaker, and Bronze Age potsherds, a variety of flint tools such as scrapers, knives, awls, and a chisel arrowhead, and large quantities of potboilers (Healy and Silvester 1991, fig 74). Upstream are other sand ridges with comparable material; the complex, within a 1km radius, may represent a seasonal encampment in use for several centuries, exploiting river and fen. Along the fen edge itself in the Hockwold area a majority of the sand islands and edges contain material of Beaker affinities including a site off Blackdyke Farm with a flint axe, dagger, and arrowhead (Silvester 1991). The correlation in distribution of the 74 potboiler sites with the far fewer late third–early second millennia sites suggests that they are all contemporary. Excavations at Feltwell Anchor, a mounded potboiler site, suggest that the Bronze Age activities included the digging of pits up to 1m deep and the collection and use of thousands of flints for heating the water. Hearths adjacent to the boiling pits created masses of dark earth, charcoal, and burnt flint fragments. At Feltwell, the site chosen for this activity was near the edge of a large sand island with fen clay of the late third millennium BC being deposited on the island slope. A large pit sunk near the edge may have served as a well or collecting tank; it held quantities of wood including a hollowed log, with transom board at each end, probably a discarded cooking trough (Fig 58). Beaker sherds scattered over the site may represent part of the activities associated with a burial, beneath the mound of black earth, of a crouched body in a wooden coffin (Leah and Crowson forthcoming).

For the later second millennium BC and beyond there are few signs of activity. Further north the same pattern can be seen, with fen edge settlements closely associated with 110 potboiler sites (Figs 37, 38; Silvester 1991, 33); here at Feltwell, however, the influence of marine-based waters was felt and a convoluted creek system developed, draining a decreasing fen until freshwater conditions reassumed a dominant position in the second millennium BC. Well out in the basin, at Brandon Bank, potboiler sites accumulated, but there is only a trace of actual occupation on these scattered isolated islands. Along the fen edge a number of sites have flint or pottery of Beaker types at Feltwell drove and Little Oulsham, and several sites have early Bronze Age lithic material. The problems of distinguishing sites within the general spread of flintwork along sand ridges have been noted in chapter 4. Of metalwork and burial mounds there are few signs along the fen edge; three ring ditches set on or close to a chalk spur overlooking the fen at Methwold Hythe Lode may represent former barrows, and a mound directly on the edge is smothered by potboilers; this may be an important relationship in any future efforts to disentangle potboiler sites.

Northwards from the three ring ditches the fen edge flows north-east and a scatter of lithic sites lies along the margin, now however close to the inward edge of the fen clay (Silvester 1991, 67). The island of Stubb's Hill, with one site, was almost totally surrounded by the clay. The sites are mostly undiagnostic beyond a general late Neolithic to early Bronze Age attribution (Fig 38), and they are probably contemporary with the 75 potboiler sites in the Methwold area. The small valley of the Hythe and the peninsula running out to Catsholm Farm mark the northern extent of the seemingly intensive interest in the eastern fen edge in the early Bronze Age. A round barrow on Herringay Hill, Northwold marks

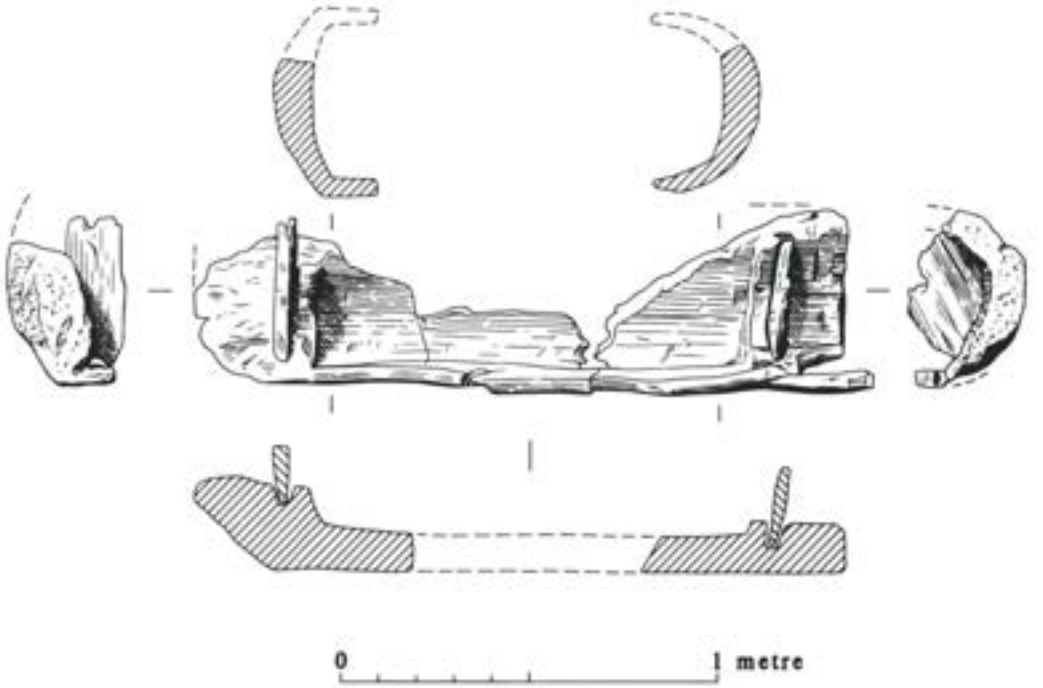



*Fig 58 Wooden trough from Feltwell Anchor, Norfolk, associated with a potboiler site (Norfolk Archaeological Unit; drawn by Stephen Ashley)*

an isolated burial on a small island in the fen, just beside the Wissey where it flows from the upland (Silvester 1991, 71). There is little trace in the record of much activity along the fen edge in the later Bronze Age, unlike that south of the Little Ouse. There is quite extensive later second millennium BC occupation around Grimes Graves about 12km to the east, and the lack of much evidence along the fen edge may reflect the deterioration of the edge and the withdrawal of settlement. There is no sign, yet, that the chalk fen edge between the Wissey and the Little Ouse housed the land management systems seen across the Fenland at Fengate as predicted by Lawson (1980, 281). The absence of later Bronze Age settlement may, of course, reflect our inability to recognise the evidence, or the survival of that evidence.

The Hilgay-Southery island, with the Wissey today flowing on its northern edge but formerly flowing on its south-eastern side, adds little detail to the picture of eastern fen edge occupation (Silvester 1988a). A few lithic scatters of the later third to early second millennium BC are known, as well as a number of potboiler sites. There is, however, a series of chance finds of stone and bronze axes and other artefacts that have turned up over the years on and off the island, and these point to a greater interest in the area than is apparent from the survey results alone. The same may be said of the eastern fen edge itself, as a number of later second and early first millennia BC metal objects have been recovered from the peats (Lawson 1980, fig 8). Whether these represent losses from the settlements or were ritually deposited (Lawson 1984, 157) remains to be determined. It may be relevant to note here that moulds from Grimes Graves produced elaborately long bronze spearheads (Needham 1991), such as have been noted from the Fenland.

North of the Wissey the fen edge runs to the west of Downham Market up to the valley of the Nar. Almost all the prehistoric sediments are obscured by the later flood clays and silts of Marshland, the whole eroded and reworked by the Great Ouse which has collected the waters of the Wissey and Little Ouse and been channelled along the fen edge (Waller forthcoming). The Nar valley provides an indication of the character and intensity of Bronze Age activity in this northern area of the eastern Fenland. Potboiler sites are known from the upstream valley at Marham and Pentney as well as several lithic scatters of the late third to early second millennium BC and a ring ditch (Silvester 1988a). In mid-valley, the Wormegay island has only a few signs of Bronze Age interest although some stone axes and adzes may not all be Neolithic in date. Along the northern edge of the valley, more potboiler sites and axes of flint and copper show consistent but rather sparse activity with perhaps some intensity at a natural river crossing-place at Setchey in West Winch.

## Wetland offerings

The comment has often been made that the many finds of metalwork from the Fenland tend to be of the later Bronze Age, the late second and early first millennia BC, whereas most of the lithic scatters marking fen edge settlement are of the earlier Bronze Age, the late third and early second millennia BC. At the time of the deposition of the metalwork settlements become less distinct, yet the character of some of the bronzes suggests local and regional production. We have yet to identify the centres where this rather fine quality metalwork was practised. Small-scale metalworking was done on sites such as Fengate on the west and Grimes Graves, well inland on the east of the Fenland. It seems

likely that at least some of the lithic scatters are contemporary with some of the metal objects, but there is still a gap in our linking of these separate industries and in our ability to identify the substantial settlements of the later Bronze Age. The powerful impulses of this period have, at the moment, no known specific sources. It is likely that a combination of environmental, economic, and social forces were at work, creating a new climate for human response. This took the tangible form of the deliberate deposition of valued metalwork, bronze and gold, in deep water or other wet places, where its power was thought to be propitiatory or appreciative. Few metalwork pieces or groups have been recovered by careful excavation, most being ploughed up or brought up by drainage or peat digging; the few exceptions have told us little about the methods of deposit, in a box, tub, or pot, for example, and nothing about the compulsion behind the act.

In the 1930s a drainage ditch on the boundary of Southery and Methwold revealed a human skeleton, lying face down with one arm across the face and the other extended. The body, of a young female, had a copper awl and a bracelet of jet beads, and lay near an ancient creek buried by peat. Lethbridge investigated the find and wrote: 'she had been drowned, carried down by the river, dropped among the sedges bordering it when the flood subsided, and subsequently covered by the growth of peat' (Lethbridge *et al* 1931); she was subsequently called 'Nancy'. Her position in the fen deposits was like that of a male found at Shippea Hill (Clark 1933, 278). The fen clay upon which Nancy lay is now dated to *c* 2800–2140 BC, and the peat formation which covered her was forming at the time of the quite extensive occupation along the eastern fen edge.

Research by Healy and Housley has shown that there are about 14 bodies known to come from comparable sediments along this edge and several have now been dated by radiocarbon to the early Bronze Age, the time when Nancy lived (Healy and Housley 1992). Isotope analysis of some of the bones indicates a diet of cereals with a little meat, and heavy tooth-wear suggests cereal-based food which was ground on coarse stone querns. Environmental studies suggest fen carr, sedge fen, or reedswamp as the local conditions where the bodies came to rest, and it appears that most lay in wet conditions from the first and were not placed on dryland later covered by peat. One of the bodies was placed on a wooden platform, near the fen edge, but most of the others were deposited near the island of Hilgay-Southery. It is possible to suggest several interpretations of this group, but deliberate disposal of the dead seems likely. We know that some of the Bronze Age dead were put in the barrows that line the upland (Lawson *et al* 1981, fig 1), but others were put in field ditches (at Fengate, Pryor 1980, 174) or inserted into natural mounds as noted above (Chippenham, Martin 1976; Feltwell, Healy forthcoming). Finds of human remains from the fen itself are quite frequent in Methwold, and may represent disposal of the dead in an area outside the normal settlement zones, as we have seen across the Fenland at Borough Fen and in other areas.

Perhaps the placing of the dead in wet areas is part of the wider tradition of disposal of 'wealth' or possessions in such places; the later Bronze Age skulls dredged from the Thames are a case involving human remains (Bradley and Gordon 1988; Bradley 1990) although it is more normal for stone and bronze artefacts to be placed in the water. At the alignment at Flag Fen on the western fen edge, the posts were a focus for the disposal of much metalwork as well as pottery and bone, including some human remains (Pryor 1991; 1992). On the eastern fen edge, the substantial amount of later Bronze Age metalwork, dating from *c* 1500–*c* 500 BC, found in the peat and other watery locations, suggests deliberate deposition of this form of Bronze Age wealth, in a period when conditions had altered from those of the early Bronze Age when fen edge settlement was extensive. Nancy and her contemporaries may mark the initiation of such practices during this major episode of activity along the eastern edge.

It may be possible to link these burials of humans with the burial of metalwork. If we see each as a supreme act of compliance with the mores of the society, in the giving of a body or of personal or communal wealth to natural forces, the mutuality of the act can override the variation in the offering. The bronzes, or goldwork, could be alternatives to human burial. And if burial practices changed through the Bronze Age, from inhumation to cremation, or from burial in the ground to exposure and disintegration above ground, then perhaps in the late Bronze Age we might postulate the existence of two forms of release – made possessions into the dark earth or waters, humanity itself into the air through exposure or cremation.

## Economy and environment

The restriction of traditional resources over much of the Fenland during the second and early first millennia BC must have concentrated attention upon zones where a combination of differing environments was encountered. It is likely that the upland fringes and wide expanses of light soils on islands and peninsulas were cultivated for cereal crops. Almost the last of the lime woodlands were cleared, as pollen diagrams demonstrate (Godwin 1940), and pollen from cereals and weeds of cultivated soils has been recovered from the Little Ouse area (Waller forthcoming). A few grain impressions on pottery (Bamford 1982) and occasional carbonised grain (Murphy 1983) help to reinforce the view that arable cultivation was practised on a relatively large scale around the fen (not in it) during the Bronze Age. Yet livestock were probably the dominant element in the whole regime of farming and gathering. Wherever settlement sites are known and examined, cattle bones occur as well as sheep, pig, and dog on occasion, and it is most likely that a large majority of small settlements of the second and early first millennia BC existed on the combined yields of domestic animals,

crops from cultivated plots, and the harvests of the animals and plants taken from the wild; fen edge settlements were the most likely to gain from the variety of wetland-dryland resources that were available near to hand. There is considerable evidence now of the management of part of such a mixed resource, in the droveways and fields on the western fen edge at Fengate (Pryor 1984a; and see comments below). The abundance of potboiler sites in some areas, such as along the eastern fen edge, indicates another activity, that of cooking, as well as perhaps other less mundane efforts (see chapter 4).

The relative lack of burial monuments in some areas where Bronze Age settlement is attested might suggest the abandonment of the fen during certain seasons, presumably the winter period. But the numerous barrow cemeteries in other areas of the Fenland, and the attested use of natural hillocks in some parts, do not support any special episodes of seasonal abandonment when the dead, stored in some way, could be transferred to final places well away from the fen. A settlement at West Row, Mildenhall appears to have been occupied in the spring, summer, and autumn (Martin and Murphy 1988), but how to identify specific winter activity is a problem. The ditched enclosures at Fengate over on the west may have been laid out to control the movement and grazing of cattle during the winter, and the drying fen used for more open summer grazing (Pryor 1984, 206). Whether or not winter floods would have made all the low-lying islands and ridges, where occupation is attested, wholly unattractive and unsuitable for winter activities must remain a problem (Healy 1984). There is a difference between unattractive (to us) and unsuitable. What we should not dispute from the evidence is that activity was persistent and consistent over large areas of the Fenland where the major naturally-induced flood conditions had less or little impact. The hundreds of sites where settlement and activity took place suggest at the very least that Bronze Age activity was substantial, traditional, and therefore efficient and organised. A site upslope of the western fen edge, at Billingborough, although quite certainly a 'dryland' site, lies within catchment distance of the fen itself. Cereal production involving built granaries and large storage jars was a major concern, and all the evidence suggests a permanent occupation on such sites.

The contrast between the fen edge settlements on the eastern fen edge between the Cam and the Wissey, with very sparse evidence north of the Wissey, may be entirely environmental; the southern edge is chalk, the northern edge is Greensand, acidic and easily impoverished (Healy forthcoming). Fen edge settlement, wherever established to touch the fen, however, would be in a different and potentially more difficult situation. The lowest-lying areas, where soils were fertile and suitable for corn or grass, are unlikely to have been actually occupied all year, but were used as naturally-bounded fields for crops or grazing. Those areas which were a bit more raised and thus removed from the threat of unseasonal flood, or winter inundation or isolation, could be more confidently harnessed, and more effort could be expended on, for example, structures and shelters for holding equipment, livestock, the harvest remnants, and/or people. The rather few settlements excavated so far within the Fenland have tended to be those positioned away from these more fragile places, and show all the signs of activity and occupation of a permanent nature.

It may be worth pointing out that the concept of seasonal movement, of transhumant Fenland economies involving the widespread droving of cattle or sheep from summer lowland to winter upland, has not often been closely defined (Evans 1987). Instead of a well-organised community-based land allocation, such as is attested from historic European transhumance, we might prefer to think of the Fenland arrangements, like those for the Somerset Levels, as a more simple turning out of animals on to summer hangings, those lands at the foot of the slopes where downwash soils mixed with more fen-based deposits to create a summer harvest of fodder (Coles 1978). The medieval Fenland had more organised, controlled, and priced allocations of summer pasture (Darby 1940), but it is unlikely that prehistoric communities would have been able to establish, monitor, and police such complex exchanges. Some of the Fenland evidence of fen edge and island occupations may thus reflect seasonal, summer, settlements and not permanent stations, with major valleys used for access into and out of the lowlands.

But this simple suggestion is now far too limiting in its application to the abundance of lithic sites set well out in the basin, to the newly-recognised cemeteries of burial mounds, and to the long-known wealth of metalwork deposited in the fens. Lithic sites of the Neolithic may in general represent seasonal activities, following traditions established in the preceding Mesolithic period, but it may be that some of the third millennium BC scatters indicate more stablilised occupations, year-round, in particularly favourable positions. In the latest third and second millennia BC, the numbers of lithic scatters are probably fewer, but the establishment of barrow cemeteries must mark an enhanced interest in the lowlands and one likely to be represented by some permanent presence on the low islands and major peninsulas of the basin. The subsequent later second and early first millennia BC episodes of settlement, burial, and metal deposition show a continuing permanent presence in the immediate area. This has taken us some way from the simple transhumant model. It is clear that matters were more complex than that.

We see little reason to doubt that the Fenland was exploited on a consistent and permanent basis throughout the second millennium BC, with its settlers building on and adapting the forms of activity established by their predecessors who had first encountered and mastered the peculiar yet rewarding conditions of a life on the edge – not the edge of unmitigated disaster, nor the edge of unencumbered stability, but an edge of constant challenge.

# 6 Settlement against the waters

> So empty of Iron Age finds is the Fen region save for a very occasional single lost coin or sherd, that comment on the period is idle save for speculation on the possible reason for so great a withdrawal (Godwin 1978).

Evidence of Iron Age settlement in the Fenland was extremely slight until recently, and early workers attributed this to a widespread flooding that made the region inhospitable. It is certainly true that the Fenland did get wetter during the Iron Age. An extensive marine incursion in the central regions laid down coarse deposits in the silt fen; saltmarsh and mudflats encroached over peat and over land that had been previously dry. Brackish water even reached the fen edge along the north-west, backing up brooks and rivers in the Billingborough region.

The southern fen landscape consisted of an expanse of freshwater wetland, with a watertable higher than at any time before. Deposits of peat formed up to *c* 3m OD, causing a diminution in the size of the fen islands. The effect of the drowning can be appreciated by comparing Figure 39 with Figure 59. For instance, the long broad peninsula of Manea, dry in the early prehistoric period, was severed from Stonea in the north and from Coveney in the south, and was itself reduced to three islands.

It was therefore of considerable interest during the survey to ascertain whether the Fenland was really such a void during the Iron Age and, if not, what could be deduced from the evidence found, such as the nature of sites, their date range, and any possible hierarchical relationships between them. The saltmaking sites known on the Lincolnshire fen edge needed putting into context; were they part of an unsuspected widespread industry?

In spite of the general increase of wetness, there was still a large amount of dryland on the southern islands and promontories. The heavy clay ground of the region was attractive to Iron Age people, perhaps because ards could now cope with heavy soils. Settlement sites, as in the Midlands, were located on heavier soils. This is the first time in the archaeological record that significant settlement remains occur away from light soils. In the Lincolnshire fen, marine roddons with levees were sufficiently dry for limited settlement and suitable for working salt pans. This was the only region with Iron Age settlement out in the fen located on Flandrian deposits (Lane 1988); indeed, this was the first time that any Flandrian deposits had been used for habitation.

As a result of the survey many Iron Age sites are now known. In the south, occupation had not been discovered, partly because clayland sites are difficult to detect by aerial photography and partly because Iron Age pottery was not recognised by earlier workers, even when it occurred on Roman sites. These new discoveries invalidate earlier statements about the absence of Iron Age people in the Fenland; the islands were occupied in the same way as anywhere else. At Ely, no settlement and only a single Iron Age artefact had previously been recognised (a currency bar; Allen 1967, 334 and pl XXXII), whereas seven habitation sites are now known there.

The period is customarily divided into three, from ceramic evidence, although there can be difficulties in distinguishing early and middle Iron Age pottery unless there are well-known vessel forms or distinctive decoration. In the remote northern area there were few changes in pottery decorative styles or technological advances, which makes it difficult to attribute individual sites to precise Iron Age or even Roman dates. For Cambridgeshire the two early Iron Age periods are taken together, comment being made if there are sherds that indicate an early dating.

An interesting regional variation is found in the late Iron Age. In Cambridgeshire and Suffolk the late phase (formerly called 'Belgic') is readily identified by characteristic wheel-made pottery forms, first fully described at Verulamium (Wheeler and Wheeler 1936) and Camulodunum (Hawkes and Hull 1947). However, the Fenlands of Lincolnshire and Norfolk have produced only a few sherds of this pottery (Hayes and Lane 1992; Lane 1988, 318–20; Chowne 1988, 186). Yet 'Gallo-Belgic' wares are familiar from upland Lincolnshire at Ancaster and Sleaford (May 1976, 174–7), and in East Anglia. Since all known Lincolnshire Fenland middle Iron Age sites were in use during Roman times, some 250 years later, and Iron Age saltmaking sites were put to the same use by the Romans, it is likely that there was actually continuous occupation. Shell-tempered, handmade coarsewares of the Iron Age and Roman periods have very similar fabrics and there seems to have been a conservative pottery tradition at the Fenland sites, pottery of the earlier Iron Age type continuing without a break into the Roman period. Rims and some decorated pieces are distinctive but few were found; only one site (at Pointon) was firmly identified as a late Iron Age settlement.

The density of settlement in the southern Fenland is considerable, approaching that of the Roman period, but it thins out towards the north and at the south-western fen edge. In the south-west not a single Iron Age site was discovered, but most of the fen edge in that region consists of Oxford Clay, which was not favoured for settlement.

Further away, on the high ground towards Huntingdon, at Broughton and Abbots Ripton, there was abundant Iron Age occupation on boulder clay Till. Settlement appears to be mainly rural in character, associated with small domestic enclosures, visible where soils are susceptible to cropmark formation. There was occupation throughout the whole of the Iron Age in Cambridgeshire, from the very early phase to the late

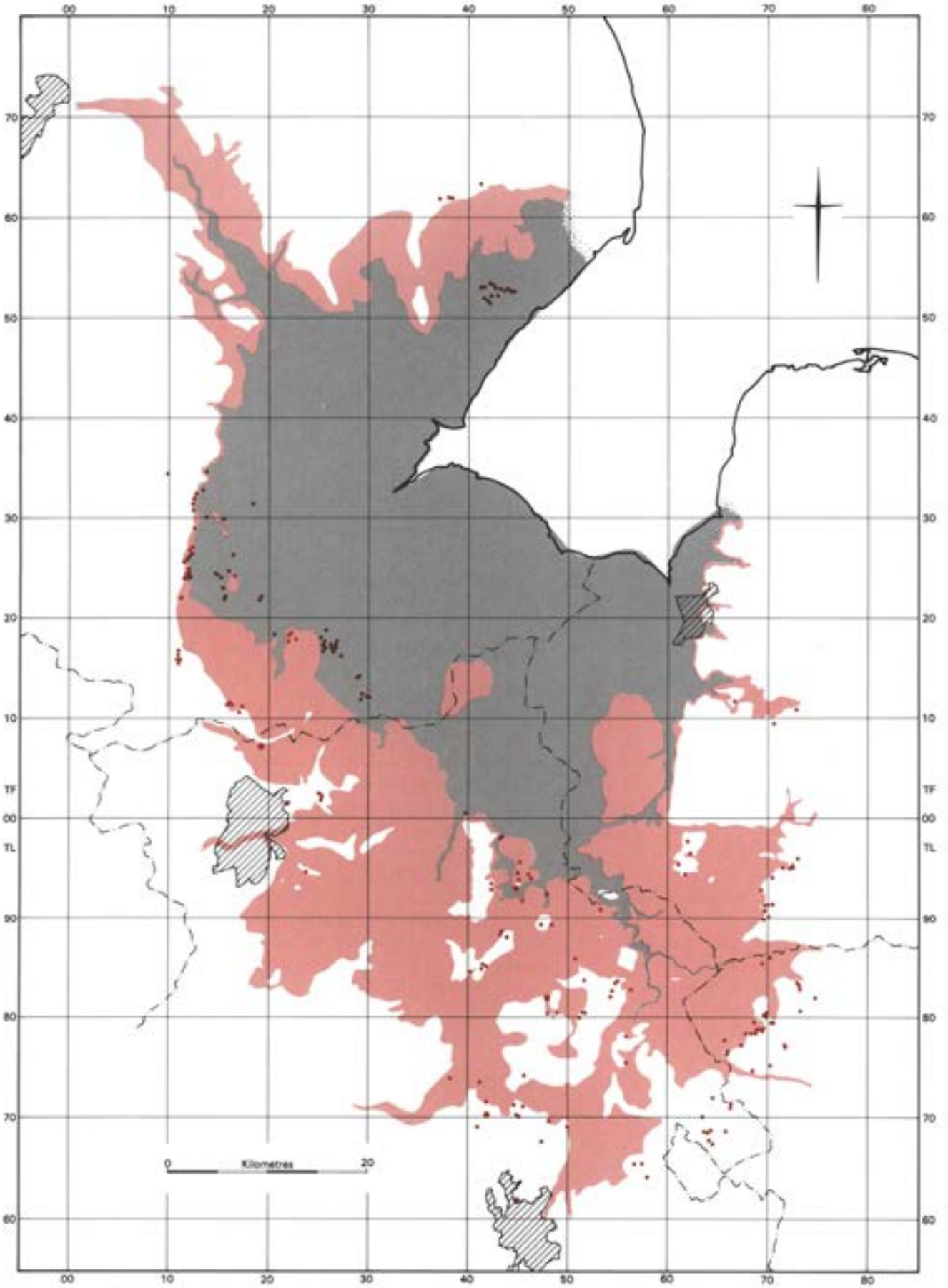



*Fig 59 The Fenland in c 300 BC showing sites and the extent of peat (red stipple) and clays (grey stipple)*

period when wheel-made pottery was introduced. A few sites are large and probably form regional or local centres; most notable are the ringworks. These will be described as part of the following regional survey and their significance considered again in the conclusion. The account begins in the north and works around the Fenland anticlockwise.

## Rural sites and ringworks

There was no widespread settlement along the northern fen edge after the early Bronze Age, and little early Iron Age activity has been found either (Fig 59). An Iron Age vessel from West Keal probably relates to pottery accompanying some of the rich Yorkshire burials (Whitwell 1970, 6). Only four sherds from Toynton St Peter could be assigned to the Iron Age. Peat spreading from the south formed extensive empty fens presenting a physical barrier to trade and contact. Out in the fen, salt production occurred at Wrangle, and salterns of probable Iron Age date lie to the west.

In the Witham Valley, at Fiskerton, a timber causeway and many artefacts were discovered in 1979 and subsequently (Fig 95; Field 1986). Swords and a shield came from elsewhere in the valley; presumably all these exotic objects were votive offerings. The activity probably represents part of an extensive Iron Age settlement in the region. The trackway was not necessarily a crossing of the Witham, for the prehistoric river did not flow along the present course, where the discovery was made, but along a central channel now preserved as a roddon. More likely the track linked small islands, and may be one of many similar causeways.

In contrast to the north, the western fen edge had middle Iron Age settlements and salterns, over 1200 sherds being discovered during the recent fieldwork (Fig 60; Hayes and Lane 1992). The distribution of Iron Age settlement and industry is approximately comparable to that of the earlier phases of the Bronze Age (Fig 40; see also Fig 45) with fen edge occupation around Billingborough-Pointon, Hacconby-Morton, and Thurlby. A fen edge saltern lying north of Billingborough has been excavated, yielding briquetage radiocarbon dated to *c* 800–400 BC (Chowne 1980, 297) which resembles briquetage from sites near Bourne associated with pottery of the middle Iron Age (400–150 BC). Another Billingborough saltern produced domestic middle Iron Age pottery and lies close to the landward edge of the waterlogged zone. The saltern debris is similar to that from a partly excavated site at Helpringham, radiocarbon dated to *c* 400–100 BC (Chowne 1979, 247; Simmons 1975b, 35).

Many settlements were strung out along a complex of enclosures connected by a single meandering ditch running parallel to the fen. The enclosures forming part of this complex at Billingborough were shown to postdate an early Iron Age phase (Chowne 1980, 297–8). They probably formed pens or paddocks for the management of stock grazing on the fen during summer months. Sparse scatters of middle Iron Age pottery found on the levees of the creeks in the marsh were possibly the domestic debris of herdsmen and shepherds tending flocks.

No finds of the early Iron Age were found at Pointon, but by the middle of the Iron Age six small settlements were established on sites that were later occupied in the Roman period. Two salterns lie on islands well out in the marsh, the first datable to the middle Iron Age. Another site marks the first move towards settling in the fen; it lies on an island formed by a buried ridge.

At Dowsby, Rippingale, and Dunsby there were settlements and salt-producing sites along the western fen edge on the dry landward side where peat fuel was available. Rippingale sites had distinctive shell-tempered briquetage associated with middle Iron Age pottery. No saltmaking occurred in the fen, but a few sherds from two sites may indicate late Iron Age activity in an area that developed into a large settlement complex in the Roman period.

Iron Age saltmaking at Hacconby was known from the discoveries of the Car Dyke Research Group in 1973. The recent survey revealed another group of middle Iron Age salterns and settlement sites on the fen edge, yielding over 100 pottery sherds dating to 400–150 BC, as well as animal bones, burnt stone, and a great deal of briquetage. During the Iron Age at Morton a pattern of settlement was established which was to expand in the Roman period. Three middle Iron Age sites lying east of the Car Dyke later became extensive Roman settlements, although there is no evidence of continuity. As well as these sites, middle Iron Age pottery was found on five of the saltern sites in the fen and on the fen edge. Two small salterns operating during the middle part of the Iron Age at Bourne were datable by briquetage. Some of the fen edge sites at Thurlby, lying along the River Glen at Kate's Bridge, have been partly buried and preserved by alluvium. There were animal bones, pieces of quern stone, fragments of burnt stone, and pottery similar to that from fen margin sites north of Bourne (400–150 BC). Cropmarks reveal enclosures and field systems along the northern edge of the old river.

On the southern edge of Deeping Fen some sites were mounded, suggesting a damp setting. One of them, near Frognall, is of great interest, lying undisturbed in pasture, with Iron Age and Roman sherds visible in molehills and Bronze Age sherds occurring in an adjacent ploughed field. At Tye's Drove, Deeping St James, a similar, but ploughed, site has been partly excavated. It was multi-phase with well-preserved remains sealed under river alluvium (Fig 61; Lane forthcoming). The main occupation phase was Bronze Age, with wet pits (or wells), and many features including the eavesdrip gullies of five circular buildings. These contained a few early Iron Age sherds, and so represent the later occupation phase of the site. As with many Lincolnshire sites, prehistoric soils survive, sealed by alluvium, and there is great, though fragile, potential for understanding the economy and local vegetation during the first and second millennia BC.

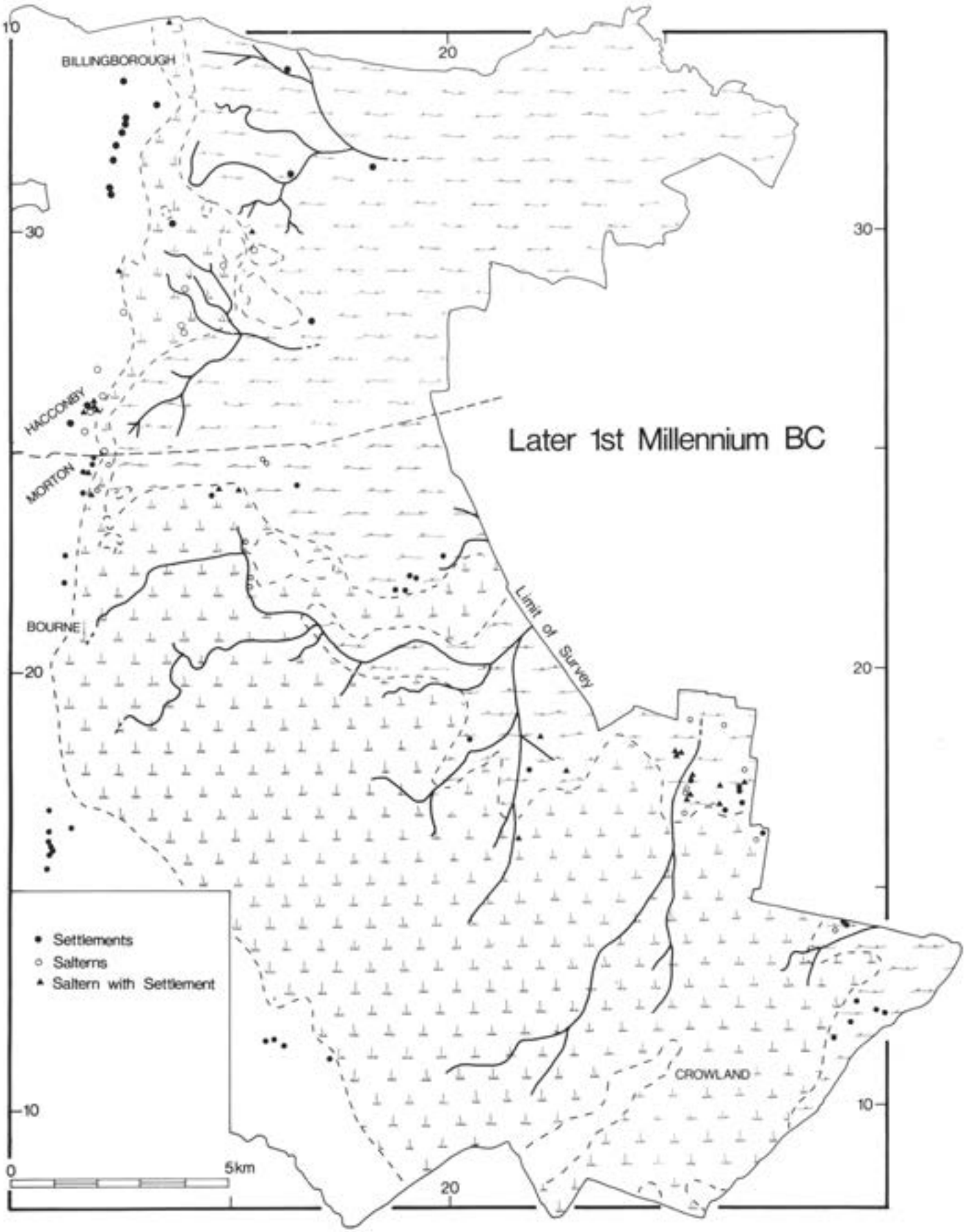



*Fig 60 Iron Age sites and salterns lying on the fen edge and the fen of western Lincolnshire (from Hayes and Lane 1992)*

Nearby, at Frognall, Market Deeping, partial excavation of a middle Iron Age and Roman site revealed a waterlogged palaeochannel with a remarkable deposit of well-preserved wood, bone, and pottery, associated with a brooch. Some upright timbers with sharpened points probably belonged to a wharf or bridge, and *in situ* stakes were possibly part of revetments. Saltern debris occurred, although a source of brackish water has not been discovered (Lane 1992). There were later Roman enclosures and other features, most of the levels being sealed by alluvium. Only a very small part of this site has been explored, and its survival must be a major priority.

*Fig 61 Intersecting round houses at Deeping St James, partly protected by alluvium (photo: T Lane)*

No Iron Age saltmaking sites were found on the landward edge of Deeping Fen. East of the peat, saltmarshes on the periphery of the silts were colonised in the middle Iron Age. Five saltern sites on a large silt roddon had pottery or briquetage of apparent Iron Age date. At the eastern end of Crowland one Iron Age saltern was identified, and several other sites had Iron Age sherds. At Cowbit salterns flourished on the wide levees of the Welland and other major creeks; three groups produced briquetage and domestic pottery of recognised middle Iron Age style (Lane 1986, 10; Hayes and Lane 1992, fig 106). Spreads of briquetage were generally *c* 30m in diameter and some were slightly mounded; one appears to remain intact under peaty alluvium. Excavation exposed a saltern hearth surrounded by a circular ditch and fed by other ditches supplying saltwater. Much of the site was well preserved under alluvium (Lane forthcoming).

Not all the Iron Age sites on the marshes were salterns. In Pinchbeck South Fen an occupation site yielded over 100 sherds with large quantities of animal bone. The sites at Cowbit and Deeping Fen demonstrate that at this time some Flandrian deposits could be occupied, though perhaps seasonally. A similar settlement of Iron Age saltmarshes has been observed in the Netherlands (van Gijn and Waterbolk 1984).

In Borough Fen, near Peterborough, lies a slightly irregular ringwork with a ditch 220m in diameter and an inner rampart 1.5m high and 4m wide, where not destroyed. The main ditch is 6m wide and now 1m deep, and is surrounded by an outer concentric ditch *c* 2m wide, forming a circle 280m in diameter. Middle Iron Age pottery was recovered where the ditch is cut by a modern road dike. The interior of the monument, which lies in pasture, has no visible features and is well protected by a covering of alluvium. The ringwork is located on the contemporary fen edge and is presumably related to the large number of sites in the immediately adjacent Peterborough region (Hall 1987, 26–8).

The Peterborough area, Thorney, Whittlesey, and March and all the southern Fenland islands revealed a large number of Iron Age sites. Pottery from a few of them has been published (Hall in Potter 1981).

At Wimblington there are five early Iron Age occupation sites on Stonea island and on the clays of Wimblington island, two having Bronze Age material and three continuing into the Roman period. The best known Wimblington site, 'Stonea Camp' or the 'Stitches', has long been believed to be an Iron Age ringwork, and was for many years the only identified monument of the period in the fens. It has a ramparted multivallate D-shaped enclosure, covering 10ha and apparently of two different phases, one 'D' inside the other but sharing a common south-west side (Figs 62, 63; Phillips in Salzman 1948, 46–7; Phillips 1970, pl Ib). Only part of the inner curved ramparts survived recent plough damage. The site has recently been returned to pasture and made open to public interpretation by removal of recent ditch fills to recreate the ramparts and ditches destroyed in *c* 1960 (Malim 1992).

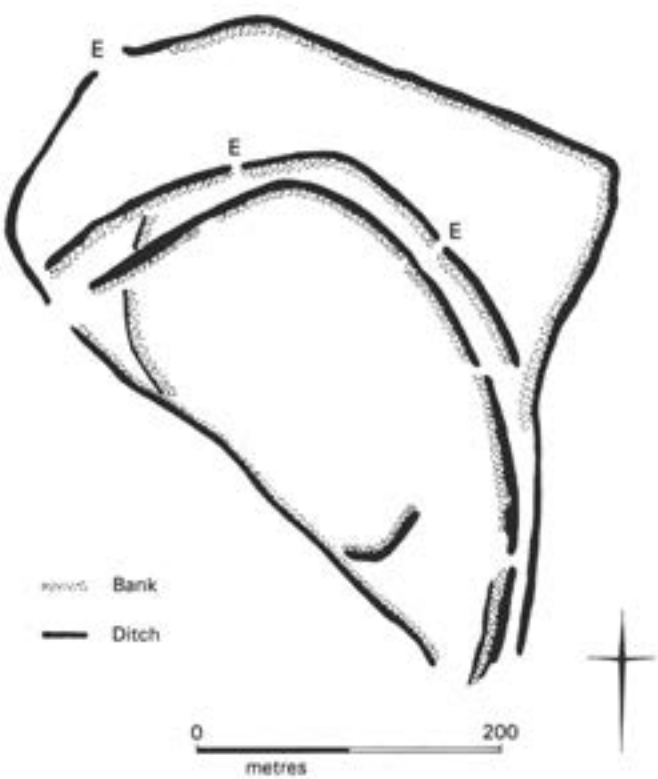



*Fig 62 Plan of Stonea 'Camp'; more than one phase of construction is evident; original entrances are marked 'E' (based on Malim 1992)*

*Fig 63 Aerial photograph of Stonea 1992, taken during excavation (photo: Rog Palmer; 92.69/10 (1992))*

A section of one of the western earthwork ramparts showed that it was of single phase construction without timber revetment. Finds from the excavation and surface collections indicated a date around the middle of the first century AD (Potter and Jackson 1982). This is in accord with a find of Icenian coins at Stonea (Evans 1890, 586–7; Allen 1970). Other Icenian coins have been reported 'near Wimblington' (Allen 1970) and recently an Icenian coin hoard was discovered at March (Potter 1983).

Potter (1989) has suggested a three-phase construction for the earthwork, but this has not been confirmed by the recent work of Malim. This involved a close fieldwalk which showed that there were very few finds in the interior. Sections made of all the ditches revealed some waterlogged deposits, a child's skull with sword cuts, complete skeletons of two adults and a young child, and other isolated bones. They were dated to *c* 130 BC. Very few animal bones were found, which is unusual for domestic Iron Age sites. The apparent entrance at the north was confirmed as original and had no defensive features. Three other 'causeways' or entrances over the inner double ditch were also shown to be original features. Environmental analysis of the wet deposits found no agricultural use for the enclosure. The plan is unlike that of most Iron Age enclosures in Cambridgeshire which are generally circular and univallate. The closest parallels are at Thetford and in Essex, which, with the late date of Stonea, may give credence to the suggestion that it represents an Icenian expansion into the Fenland.

At Manea there are three occupation sites, and Chatteris is remarkable for two large undefended Iron Age sites at Langwood (10ha) and Honey Hill (2.5ha), as well as four smaller ones. The large sites have intense occupation with dark areas, burnt stone, domestic bone, and large quantities of sherds. Many early forms of pottery are present, some probably dating to the late Bronze Age. At Langwood, the largest Iron Age site in the Cambridgeshire fens, sherds, metalwork, and Icenian coins have been collected. Although on a 'hilltop' spur, with fen on one side only, the site does not appear to have a defensive ditch. Recent sampling of the site confirmed that there are many ditches filled with domestic refuse (C Evans, pers comm).

One of three Iron Age sites at Butchers Hill, Littleport, had continuous occupation for nearly a millennium, from the late Bronze Age to the end of the

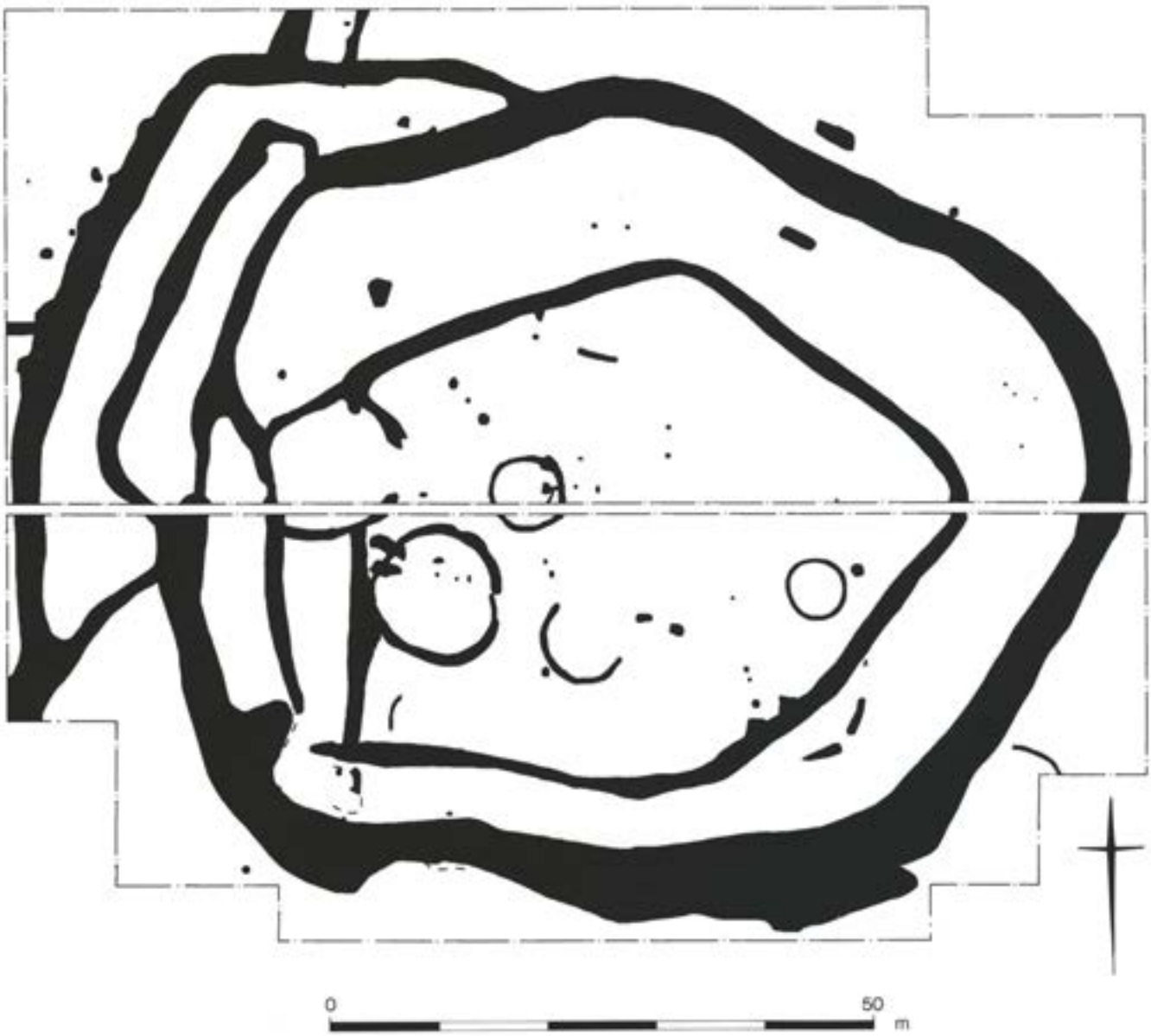



*Fig 64 Plan of Wardy Hill enclosure, Coveney, showing the complex defences on the west (based on Evans 1992)*

Roman period. Five of the seven Ely sites continued into the Roman era. Two of them lying on sandy soils had Bronze Age origins; only one site was single-period Iron Age. All were located on relatively high ground away from the fen edge. The fairly uniform distribution of settlement suggests that most of the dry ground in the region was utilised.

A small ringwork at Wardy Hill, Coveney, was known as a cropmark with an irregular double-ditched enclosure and a few vague additional ditches on the west side. On the ground there was an approximately circular soilmark of ploughed-over ramparts, 50m in diameter, still partly earthwork in 1981. The whole area, both inside and outside the enclosure, was stained dark and there were stones from hearths and yards and many pottery sherds. The site lies on the Iron Age fen edge at an estimated 2.7–3.0m OD, and was surrounded by fen on all sides except the west.

Owing to severe plough damage the ringwork was excavated in 1991–2 (Evans 1992); the plan is shown in Figures 64 and 65. The main entrance was defended by a remarkable series of ditches and ramparts, similar to Wessex forts. In the interior were four 'huts' with circular eavesdrip gullies, associated in two pairs. They were not contemporary and probably represent successive stages of paired dwellings. The density of finds was very high, at 28,000 artefacts recovered, even though the site had a short life during the first century BC and a little later. Much of the pottery (80%) had 'middle Iron Age' affinities, but was stratigraphically intermixed with late Iron Age wheel-made material, confirming the late date. High status pottery of samian and La Tène-style vessels came from the buildings. The ringwork was perhaps the most important of the many Iron Age sites in the Isle of Ely.

Another Iron Age site at Coveney lies on the end of a spur at Little Hill, Coveney. It produced Iron Age and Roman sherds from a square enclosure visible as a soilmark. The sides were about 50m in length and the ditch was broad. Witcham has a single Iron Age site not

*Fig 65 Aerial photograph of Wardy Hill taken during excavation in 1992 (photo: Rog Palmer; 92.36/7 (1992))*

far from those at Coveney, but in a low location on Kimmeridge Clay. Iron Age sherds occur within the soilmarks of a square enclosure which had a side 50m long and a larger enclosure attached to its west side. It is unusual for settlements to lie in this type of wet clay location. Both sites presumably related to the Wardy Hill ringwork.

At Haddenham, Upper Delphs, a remarkably preserved habitation site of the middle Iron Age, sealed under alluvium, was excavated near the West Water. The earliest phase had three round buildings associated with areas of cross-ploughed ard marks, forming the first evidence of prehistoric ploughing in the Fenland. In the next phase, a ditched enclosure about 50×50m was constructed containing a large round house built on a turf or brushwood base and surrounded by a continuous eaves gully (Fig 66). This building was replaced by two smaller round houses placed at opposing corners of the enclosure. The site was abandoned because of flooding in the later first century AD and reused briefly as a stock enclosure. Its final abandonment in the late fourth century was also due to flooding, after which it was partly buried by alluvium (Evans and Serjeantson 1988).

The site produced wet environmental remains, and many well-preserved artefacts from the round houses and their associated eavesgully banks, hut-wall stubs, and floors (Evans and Hodder 1987). The most interesting finds were the faunal remains, showing that the inhabitants of the site were taking advantage of the Fenland environment. After cattle and sheep, the most common bone types were those of beaver and swan; also identified were Dalmatian pelican, common crane, heron, mallard, coot, and curlew. Pelicans need extensive wet habitats and beavers live next to running water; hence the presence of both encroaching fen and the River Ouse is testified. The Iron Age occupants of the site were operating conventional husbandry with sheep and cattle as well as exploiting Fenland species.

In the south-west is Belsars Hill at Willingham, an impressive circular earthwork, with a rampart 6.3m wide and 2.1m high in places, and surrounded by a

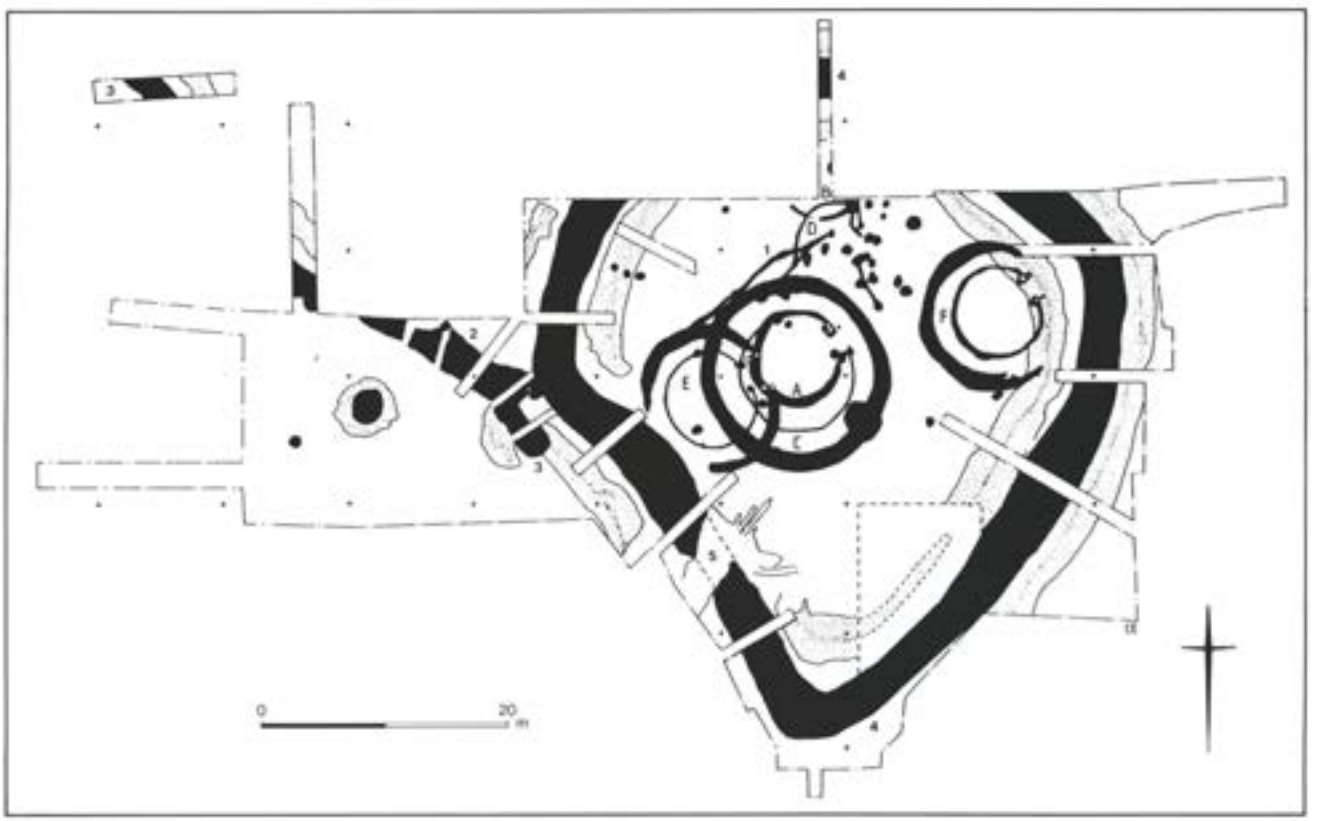



*Fig 66 Plan of Haddenham Delphs showing several round houses inside an Iron Age enclosure (from Evans 1982)*

ditch 8m wide (Fig 67). The enclosed, roughly circular, area has a diameter of *c* 240m, similar to Borough Fen. Ridge and furrow within the enclosure does not align with the pattern of the strips outside (shown on an open-field plan of 1812 (CUL Map Room)). The site had long been thought to be a Norman ringwork, associated with the siege of Ely, when a castle of Aldreth is recorded (Salzman 1948, 45–6; Renn 1973, 89). An Iron Age date seems likely since few such Norman ringworks are known in open country in East Anglia or the East Midlands. The way that the monument interrupts the pattern of the medieval fields strongly suggests that it predates them. Such a structure would not be Roman and an early prehistoric date would be unlikely for a clayland location. There is appreciable Iron Age settlement and activity in the West Water region, from Over to Waterbeach, and Belsars Hill probably represents a regional centre. No structures are visible in the pasture interior and no finds occur in the ploughed fields immediately adjacent.

At Cottenham the Iron Age is well represented as three single-phase sites with another continuing into the Roman period. Willingham produced three Iron Age sites, two of them also having Roman material and lying on clay upland. The third site lies on skirtland and has occupation debris, dark soil, and small burnt stones, with both hand-made early Iron Age and wheel-made late sherds. It is associated with a complex series of cropmarks of enclosures, one of them double-ditched, and a pit alignment. A site in Over Fen lies at the western end of the large complex of Iron Age and Roman sites in the West Water Valley. The complex stretches from Over to an early site north of Denny Abbey, Waterbeach, in the east.

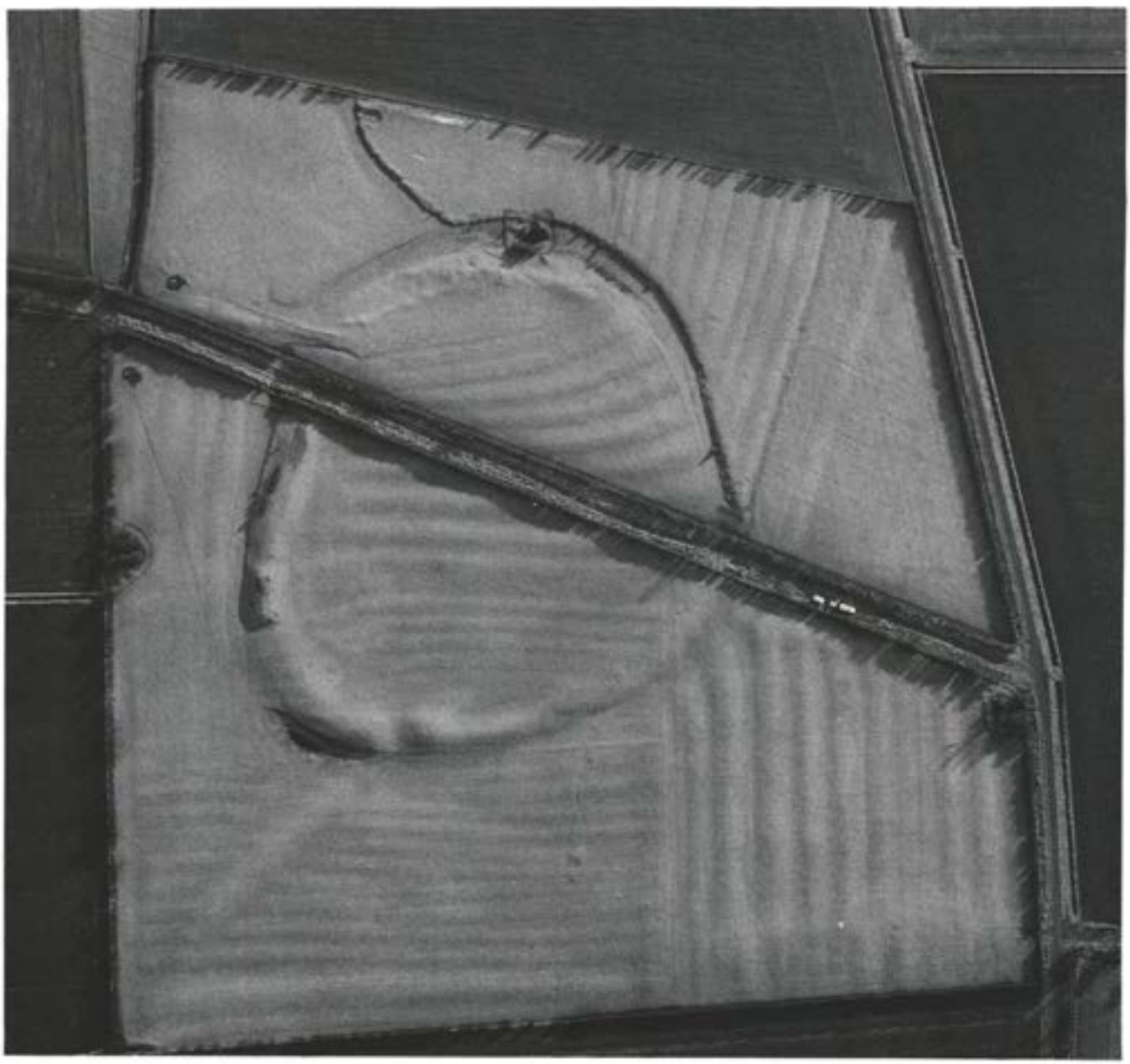


*Fig 67 Aerial photograph of Belsars Hill, Willingham, with medieval strips lying unconformably inside the Iron Age ringwork (photo: Chris Cox; 92.11/7 (1992))*

In the south-east a site at Soham is a southern outlier of the sites at Ely, placed strategically on a hilltop at Henney. Among the occupational remains are decorated sherds in a range of fabrics, probably of early date. Fox (1923, 81) refers to 'an Iron Age warrior buried with his spear and two dogs' but the location is uncertain. Three occupation sites were discovered at Fordham and early Iron Age burials are also known. There were inhumations associated with finger-tip-decorated pottery (Salzman 1938, 289, 302). A bronze terminal in the form of a bird's head came from a different location (ibid, 297).

Finds are numerous on the dry soils of Chippenham and Snailwell, occurring mainly near the fen or streams. At Chippenham there is a long-used site (Mesolithic to Iron Age); nearby, Leaf (1940) found pits with early Iron Age pottery and bronze pins and a bracelet. Snailwell has two sites within the village area; one was not long ploughed when visited in 1981, and large sherds were lying in quantity on a very dark area which also had domestic bone and burnt stone from hearths. The pottery was of early type with Fengate rims and carinations. There was one bronze object and several house sites could be detected. The same pattern of settlement continues along the Suffolk fen edge, where part of a large site has been investigated (Briscoe 1949; Gell 1949). A few sites are known on high spots in the medieval fen of Lakenheath; they would have been dry during the Iron Age. Two cremations in urns were discovered on the upland in 1914 (Clarke 1939). Mildenhall has also produced two sites in the (later) fen (Martin in prep a).

On the southern Norfolk fen edge much of the potentially habitable skirtland is obscured by woodland and by the watercourse and banks of the Cut-off Channel. Probable Iron Age sherds were found at Hockwold. Several sites are known at Feltwell, and excavations have occurred on two of them. An Iron Age ditch was found beneath a Roman bath-house, north of Little Oulsham Drove, in 1962 (Gurney 1986, 4, 9), and Iron Age pottery came from trial pits beneath an adjacent villa in 1964. Occasional sherds from fields to the north indicate that there was Iron Age occupation in the vicinity. Gurney (1986, 28) attributed the pottery to the third and second centuries BC.

At another excavated site Curtis (see chapter 10) collected quantities of pottery after permanent pasture was ploughed in 1961, and in the following year he excavated a house site. A third site was examined briefly by Rainbird Clarke; a recent study of the finds suggested dates from the fifth to third centuries BC. The only house structure was a chalk floor that had been disturbed by ploughing. There were several spindle-whorls, a weaving comb, and a decorated bone handle, as well as much pottery.

The distribution of Feltwell Iron Age sites shows a fairly regular spacing along the fen edge, with indications of more settlement higher up on the chalk hillside. A fully utilised landscape edging the fens is probable. Of most interest is the Kettle Lane spur, an upland ridge projecting into the fen with substantial activity on both the northern and southern slopes. The absence of material on the top of the spur suggests that proximity to the fen edge was a significant factor in the location of settlement. Activity shifted to the upland beyond the skirtland. At Hilgay the number of Iron Age settlements was small. A sandy knoll produced heavily-gritted pottery that could be Iron Age or perhaps late Bronze Age in date. A second Iron Age site existed on the west side of the island overlooking the fen (Silvester 1991, 88–9).

Only a few scatters of Iron Age material have been discovered along the northern Norfolk fen edge and its rivers. A settlement on the hill-slope next to Abbey Farm, Shouldham, is indicated by sherds found during fieldwalking and excavation, although it is not possible to define the extent of the site. A skeleton with an accompanying anthropoid sword was found south-east of the village in 1944 – a rare instance of a later Iron Age warrior burial.

In the Nar and Wissey Valleys, two sites at Wormegay and Marham lie on or above the 7.5m OD contour and away from the fen edge. At Middleton there was industrial activity associated with the iron deposits on top of carstone.

## Salterns

Salterns have long been known in Lincolnshire, those of the Roman period being the most familiar (S J Hallam 1960; 1970; Nenquin 1961; Simmons 1975b; 1979). Chowne (1980, 297) excavated late Bronze Age saltmaking remains at Billingborough, radiocarbon dated to *c* 800–400 BC, the earliest known saltmaking site in the region. Simmons (1975b; 1980) identified Iron Age salterns along the western margins of the Lincolnshire fens, and salterns of the same period were found in the Skegness region, some exposed by tidal erosion (Swinnerton 1932; May 1976, 143–55; Baker 1960; Kirkham 1975; 1981, 9).

Recent work on Iron Age and Roman salterns in Lincolnshire has been fully discussed by Lane (in Hayes and Lane 1992, 218), and a typology of fabric and form developed. This was based on a visual assessment, without microscopic analysis, and allowed the identification of a chronological sequence within the overall assemblage. The resultant dated sites provided information needed to map the extent of the industry and the contemporary environment.

Salterns were identified by local concentrations of briquetage, often associated with dark soilmarks. Fired clay was so abundant on certain sites that the soil itself appeared red. In the marine-clay areas, salterns, like most settlements, were located on or just beside roddons. A number of sites were visible as low mounds. No briquetage was found on upland sites away from the fen margin, but it occurred on 192 Fenland sites. On each individual site it generally appeared homogeneous, with few sites yielding mixed fabric types.

To prove the presence of Iron Age activity it was essential to date individual salterns. Difficulties occur

because many (72, 38%) had no domestic pottery. There was also the possibility that some sites continued in use after the saltern stage. In such cases briquetage and unrelated domestic wares would share the same location. Lane has given a full analysis that enables many sites to be dated by the nature of the briquetage alone.

Salterns operated where the basic requirements of the industry were most readily and abundantly available. It was essential to have saltwater or saline muds, fuel for the evaporation process, and clay for manufacturing the vessels. Saltwater 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 possibly wood. Clay would have been available within the area of earlier marine flooding and also on the uplands adjacent to the fens. Salterns are most frequently found at the junction of saltwater marsh and freshwater fen where both brackish water and fuel occur. Sites are distributed in two main areas, as already described, lying on the landward edge of marine silts and along the fen edge from Billingborough to Bourne.

Much of the briquetage assemblage consisted of amorphous baked clay fragments, but some objects were identifiable. These were classified as 'bars' and 'supports'. Bars are elongated, and are often described as fire-bars. Oval-sectioned examples are referred to by Hallam and others as cigar-shaped, and some taper towards the end. The variety of bar forms is similar to Norfolk examples (Gurney 1986, 128–9), and others include tapering rectangular-sectioned bars resembling the Class C examples of Bestwick (1975, 68–9) from Roman contexts at Middlewich.

Supports, like bars, were individually and crudely manufactured and apparently designed to hold a tray in position or used for evaporation of salt. Two categories, 'hourglass' supports and 'cylindrical' supports were identified. Hourglass supports, so called because of the distinctive pinched middle, are generally 20–30mm high with splayed ends *c* 15–20mm in diameter; they are a feature of Iron Age sites. Some were used in an upright position as vertical supports while others of similar shape were probably used as spacers or clips. Many have impressions of vessel rims, showing that they were used horizontally to secure parallel troughs by bridging with wet-clay plugs. 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. A few had rim impressions at one end and were flattened at the opposite end. These presumably held trays secure against walls. Cylindrical supports tend to be less pinched, and larger, up to 80mm tall by 40mm diameter, and used vertically. The imprint of a trough base on one support suggests that it was first used in a wet, unfired state.

Vessel sherds appear on many of the sites, probably from trays or troughs, but none survived sufficiently to allow the reconstruction of its form. Rim sherds of straight-sided vessels were commonly found. Wall sherds were thin (*c* 50mm) and came from shallow vessels. The only full vessel profile was about 40mm high. There were subrectangular troughs from a site at Billingborough with a vertical cut incised prior to firing. This site also had sherds from a circular pot made of briquetage fabric. Parallels to these troughs are known from Ingoldmells (Swinnerton 1932; Baker 1960; illustrated by May 1976, 148).

One type of briquetage had chopped vegetation mixed in the fabric. Alvey (in Hayes and Lane 1992, 227) concluded that the tempering was cereal waste rather than wetland vegetation. On some fragments seed impressions were 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*

The waste was threshing straw, as found in briquetage from Denver (Gurney 1986, 134) which was from spelt and six-row hulled barley. Spelt had previously been identified in briquetage from Lincolnshire (Hallam 1970, 63), and spelt and weeds of cultivation were also used in Hampshire briquetage (Bradley 1975, 23). Although some cereals may have grown on the highest siltland in the Roman fens, cereal and salt production could hardly have coexisted. If briquetage was manufactured on site the threshing waste can only have been a deliberate part of its manufacture, excluding the more widely available local vegetation.

Whether saltmaking was an 'industry' or a part-time subsistence activity can only be determined by further study of production capacity, markets, labour requirements, and the basic techniques of manufacture. The findings of the briquetage classification are pointers for future research. Briquetage from Lincolnshire needs detailed comparison to that from the neighbouring Fenland counties. A spectrographic analysis of the clays and a study of diatoms within the briquetage would be beneficial. Selective excavation of the type sites is needed to study the production techniques and chronology.

## Late Iron Age settlement

In the north a late Iron Age defended enclosure was identified and excavated at Tattershall Thorpe in the Bain Valley (Chowne *et al* 1986). Horncastle probably developed in the late Iron Age (Field and Hurst 1983, 84), and May has suggested that it was one of a series of possible proto-urban centres that marked the division of lands into subordinate chiefdoms during the first century BC (May 1984, 21).

A late Iron Age gold coin was found at Deeping and the large Roman site complex in the Prior's Meadow area grew out of a late Iron Age centre, and reinforces the suggestion that the late Iron Age is under-represented in the ceramic evidence. 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 buried by 1.5m of silt.

In the south many sites continued into the late Iron Age phase, yielding wheel-made sherds in characteristic fabrics. Sherds have come from the claylands of Sawtry (Garrood 1937), and on several of the fen islands from Peterborough, March, Wimblington, Chatteris, Downham, Ely, Haddenham (where an unprovenanced coin was found (Clifford 1961, 140)), and Witchford. A second Witchford site lying on Kimmeridge Clay skirtland has late Iron Age remains and nothing earlier, yielding, as well as sherds, pieces of puddingstone and sandstone querns (Hall forthcoming). The Coveney excavation showed that the ringwork was late in date. The most important late site in the area is probably the earthwork at Stonea Camp. The region is marked out by the discovery of hoards of Icenian coins at Stonea, March, and Chatteris. Water communication with the coast would have been possible from the Camp.

In the southern fen edge a site at Willingham, when partially excavated in 1985–6, revealed a ditch and pits of late Iron Age date with burnished pottery similar to Camulodunum types. There was a pit containing the skull of a child, but no other human remains (P Middleton and D Trump, pers comm, 1986). A Willingham site had both early Iron Age and wheel-made late sherds, and at Cottenham a site yielded similar material.

On the south-eastern fen edge at Soham, Iron Age coins have been found by metal detecting. Green Hills Chippenham has a late Iron Age site, and at Snailwell a cremation with grave goods was discovered in 1952. It had been placed in a timber cist 1.88×0.9m that had angle irons at the corners. The cist, with the cremation in the middle, lay in a pit 1.95×2.5m and 1.2m deep. There were rich grave goods with ornamented lengths of bone (probably the cheek pieces of a bridle), a bronze amulet with animal heads at the terminals with eyes of glass, an iron shield boss, three amphorae, a wine jug, and many pieces of broken vessels, nearly all imported, that included a butt beaker, terra rubra, and terra nigra. Animal bones of a young pig, ham bones, and bones from a joint of beef suggested that food had been placed with the cremation. The pottery indicated a date in the first years of the Claudian conquest (*c* AD 45) and the bones and deliberately broken vessels were interpreted as being the remains of a funeral 'banquet' (Lethbridge 1954).

At Lakenheath, Suffolk, a large site investigated by Briscoe (1949) produced much late Iron Age material. Several Icenian coin hoards have been found near the fen edge and in the (later) fen (Martin in prep a; Briscoe 1963–4; Allen 1970). Mildenhall has also produced several coin hoards (Martin in prep a).

## Conclusions

Although the area of wetland was at a maximum during the Iron Age, there was widespread utilisation of fen edge and fen island locations. As a result of the recent survey the pattern of settlement can now be seen, and is likely to be fairly complete, fieldwork having balanced the deficiencies of aerial photography on heavy clay soils. As with the the upland, especially in the valleys of the rivers that enter the Fenland, there is dense and widespread activity compared with any earlier period.

Most of the data are derived from fieldwork collection and mapping, with limited information from excavation and from aerial photography. The sites are mostly of rural character, similar to upland sites, and doubtless would yield ditches of round houses and other domestic farming enclosures if investigated. The few excavations undertaken, at Deeping St James, Market Deeping, Fengate, Coveney, Chatteris, and Haddenham, have provided confirmation of this. Of different character are the Lincolnshire salterns, which took advantage of Fenland resources of peat and saltwater. They can be seen to be part of an extensive series of sites. Excavation is needed at selected examples to determine the level of activity: whether there was a full-time industry or only a subsistence production confined to the levees of tidal streams, operating in summer when flooding was less threatening.

Little can be said on present evidence about social hierarchy. It is not easy to imagine any particular 'fen-wide' community, as the region would be difficult to control and contact would be minimal over impossibly great 'wet spaces' between, say, Fiskerton, near Lincoln, and Mildenhall (over 130km). However, a discrete Fenland community could have existed on the islands of the Isle of Ely, and there are many sites in this region. The complex defences and fine quality artefacts of the impressive ringwork of Coveney clearly place it at a high hierarchical level, and it may well have been a local centre.

Two other ringworks, at Borough Fen, Peterborough, and Willingham, although substantial enough to have been designated as scheduled ancient monuments, were identified for the first time as belonging to the Iron Age. The problem of interpreting ringworks is well known. Although imposing and suggestive of regional centres, they occur nationally most frequently where an undulating topography lends itself to the creation of 'hillforts' and, in the East Midlands, they are rare on the lowland even where there was dense settlement. The Fenland ringworks are interesting since the choice of site location proves that they were not built because there happened to be suitable hills available. There are a few 'hills' in the Fenland but none of them was used for a ringwork; in other words the ringworks that exist were put in low locations because the builders wanted them to be there, not because of a lack of local high spots and promontories. The siting of Borough Fen, Stonea, and Coveney could be considered 'defensive', even though not high spots, because the immediately adjacent fen provided protection.

The precise use of the ringworks cannot be determined without excavation evidence. Only Stonea has been examined, and from the limited area investigated the interior of the ringwork appears to be devoid of domestic occupation. Just south of the Fenland, nearer to Cambridge, the ringwork of Arbury has also been shown to be 'empty' (Evans 1992, 16–20).

If the large ringworks have little domestic occupation in them, what was their purpose? They do not seem to be early 'urban' centres, even though all of them lie in sub-regions with appreciable Iron Age settlement in the vicinity. A usage for the transhumance of cattle seems unlikely. Such labour-intensive earthworks are quite unnecessary to control animals. In a typical Midland medieval vill many hundreds of sheep and cattle were moved daily from village to meadows by a few boys, and any herd management, such as selection of calves or lambs, was done by means of temporary pens made of hurdles. Perhaps in interpreting the Iron Age ringworks we should be looking not forward to urban centres but back in time to causewayed enclosures and henges. The human remains found at Stonea may perhaps be paralleled to ritual usage of the earlier prehistoric sites.

The survey has given a context for future investigation and interpretation of these problems, both in the site distribution patterns and in the selection of sites for preservation and excavation. Many of the sites are little different from those of the dryland, although even those on high ground may have wet deposits in deep ditches carved out of clay. On the fen edge, sites partially buried by alluvium, such as occur mainly in Lincolnshire, offer the greatest potential for wet remains. The preliminary results from Market Deeping and Deeping St James are promising and exciting.

# 7 The colonisation of new land

The Roman period in the Fenland was studied during the seventeenth century by Dugdale, and later by Stukeley and others. Modern work was brought together by the Fenland Research Committee in a volume edited by Phillips (1970). The work benefited from environmental studies, and from the fieldwork of Bromwich and Hallam. The results of aerial photography, a technique that is very effective on the light soils of the central Fenland, were extensively used.

During the Roman period the watertable was generally lower than in the Iron Age, and there was much settlement on the fen edge and islands. Also, for the first time, there was widespread exploitation of the Flandrian marine silts of the central Fenland. The differences in the landscape can be seen by comparing Figures 59 and 68. The nature of this siltland activity was so different from that in the remainder of the Fenland that it will be discussed separately below, following an account of the canals, which involved the whole Fenland.

The general approach of the Fenland Survey with regard to Roman remains was the same as for other periods: to obtain as complete a record as possible of all sites and their distribution pattern, identifying in particular remains in earthwork form or those which were likely to have waterlogged remains. Many rural sites were preserved by drowning after the Roman period, to emerge again after drainage in the seventeenth century in earthwork form. It was urgently necessary to discover if any had survived the inroads of modern arable agriculture, apart from two preserved as scheduled monuments. In spite of the data edited by Phillips, there were still several problems to unravel. In the Lincolnshire silt fen, Hallam had identified a salt production industry, but little evidence seemed to be forthcoming from Cambridgeshire, while in the Norfolk siltlands almost no Roman finds had been made, there being few cropmarks and no salterns. The differences, if real, needed explaining. Major engineering works, such as the Car Dyke and Fen Causeway, also required placing in context. Was their original purpose drainage or transport, and did they relate to any significant hierarchical sites? Was there any evidence for the suggestion that the Fenland formed an imperial estate?

## Roads and canals

For the first time there was appreciable modification of the landscape by large-scale engineering works, as well as the establishment of settlements, some of them based on villas. Roads around the fen edge were extensions of the mainland system, such as King Street connecting Bourne with the military fort at Longthorpe near Peterborough (Whitwell 1970, 47). The Peterborough section runs across arable fields without modern superimpositions, where it can be seen as a slight agger capped with gravel, the normal surface of roads in the East Midlands. In the south, Akeman Street, Landbeach, has more than 2km of road not directly covered by modern tracks. It, too, is exposed as a slight bank capped with gravel.

Some of the routes across the fen began as canals; several were recognised long ago and more have been noted recently. Some are relatively short, linking active watercoures, but others, notably the Car Dyke and Fen Causeway, are long, the last being a major transport route.

### The Car Dyke and related channels

The best known and most extensive canal is the Car Dyke, running along the fen edge, linking the Nene at Peterborough with Lincoln, a distance of 65km. Much of the southern portion has been dug out as part of the modern drainage network. Where not disturbed (at Peakirk and Northborough near Peterborough), the ploughed remains are 52m wide in all, existing as a low central channel with eroded banks about 1m high. The bottom (determined by augering) is 2m below the present ground surface, and contains 0.5m of wet fills. An undisturbed length survives as an earthwork in a wood at Thurlby near Bourne, Lincolnshire (TF 1053 1611) where the channel is a hollow 12m wide with banks surviving up to 1m above the general ground level.

The Car Dyke was interpreted by Stukeley as a canal used to transport grain for the Roman army in the north. Simmons has challenged this, noting that the Dyke does not lie on the level and is not completely continuous. A longitudinal section cut at Billingborough (Simmons 1979, 189) demonstrated that there was a discontinuity at TF 1305 3340. Natural gravel at that point formed a baulk 27m wide, presumed to be a Roman crossing point. Similar interruptions to the Dyke are suggested from aerial photographic evidence (Hampton 1983, 113). Simmons interprets the Car Dyke as a catchwater and not a canal used for long-distance waterborne transport. The Car Dyke is unlike all the other canals in its appearance and size. Further comment appears below.

Rippingale Canal is an artificial channel of uncertain function, but an impressive piece of engineering, 2km long, cutting through a large roddon near the southern end of a fen island. It does not join the Car Dyke, stopping short of it by *c* 500m. Although the canal does not lead from or to anywhere that we can see as especially significant, it makes use of a low length of peat fen, and links the Car Dyke with roddon settlements on the silt fen.

The Bourne to Morton Canal linked Bourne with a natural watercourse some 6km away, in Pinchbeck North Fen, and provided a route to the sea. In Bourne Fen, the canal forms a slightly elevated linear band of

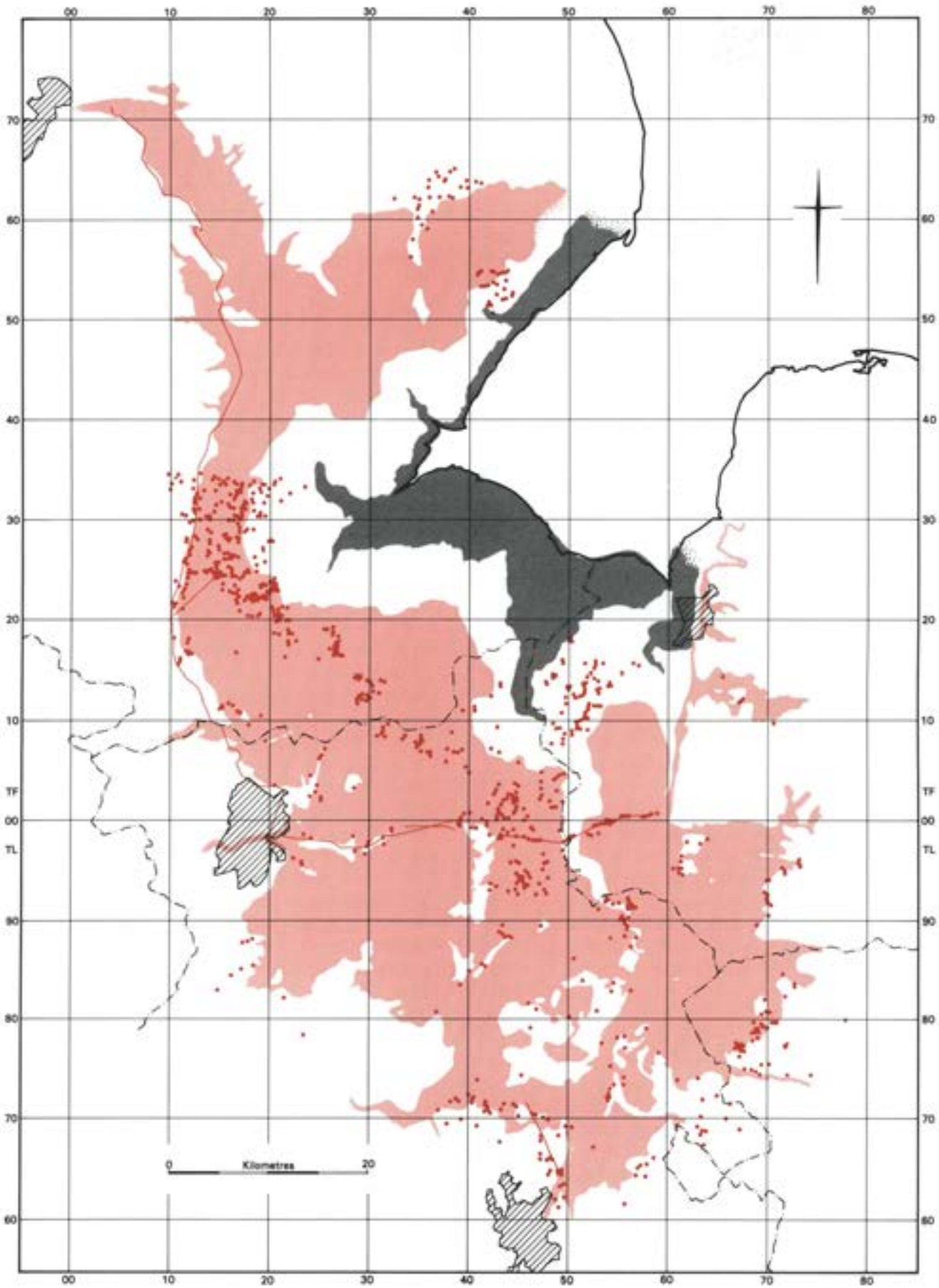



*Fig 68 The Fenland in c AD 100, with artificial waterways cutting through peat (red stipple) and clays (grey stipple) linking some of the principal rivers and the islands of March and Stonea*

sand or silt, seen in a ditch section as a layer of reddened silt 0.2m thick. The interpretation of the feature as either a canal or causeway near Bourne is not conclusive. It is possible that its purpose was to provide local drainage at the same time as providing access to sites lying on the silts. At the eastern end, the canal has wide levees where a natural watercourse is crossed at Morton Drove. Cropmarks of ditches occur on the levees of the canal at its seaward extent (Hallam 1970, 256 and map 3), showing a series of smaller parallel 'soak' dikes and ditched enclosures. Like the Fen Causeway this part of the canal is related to saltern and settlement sites which operated adjacent to its main course.

At Deeping a straight artificial watercourse cuts across alluvium-covered fen margin towards Deeping Fen for over a kilometre. The channel was about 30m wide, cut into grey alluvial clay, and began near the complex site in Prior's Meadow, Deeping St James. It links with a main roddon that runs for several kilometres across the fen, passing west of Crowland into Cowbit Wash. The canal cuts off a bend in the river and provided Prior's Meadow complex with water access to the major saltmaking area in Cowbit Wash, and thence to the sea.

Straight sections of several modern rivers have been suggested as Roman works, but the evidence is inconclusive, and it is most likely that they form part of the extensive late Saxon and early medieval organisation of the Fenland. Hallam (1970, 35–9) suggested that the modern course of the Bourne Eau, and the Glen between Kate's Bridge and Guthram Gowt, are based on an original Roman layout.

Elsewhere in the Fenland there are linear silt banks, now existing as 'roddon-like' features standing proud of the ground surface by about 1.5 to 2m, and interpreted as canals. Their straightness, in most cases, marks them out as being artificial and they cut across what was Roman peat fen, linking roddons that would then have been active rivers flanked by levees. Construction through peat, where possible, would be easier work than cutting a channel in shifting silt.

## The Fen Causeway

The Fen Causeway crosses the southern Fenland from Peterborough (*Durobrivae*) to Denver, linking the Midlands with East Anglia. In the west it connects with two north–south routes, Ermine Street, the great thoroughfare from London to Lincoln, and the lesser road to Ancaster known as King Street (Margary 1973, 230). In the east, at Denver on the fen margin, the Causeway is met by two roads that traversed Norfolk, one starting at the coastal town of Caister-on-Sea (Robinson and Gregory 1987, 56), and the other from Caistor St Edmund near Norwich.

The presence of a gravel road, presumed to be Roman, crossing the fens has been known since the seventeenth century when Dugdale (1772, 174) noted the 'long causey made of gravel, of about three feet in thickness and sixty feet broad (now covered with the moor, in some places three, and in some others five feet thick) which extendeth itself from Denver in Norfolke (near Salters-lode) over the great wash to Charke; thence to March, Plantwater and Eldernell, and so to Peterborough, in length about xxiv miles.'

Miller and Skertchly (1878, 40) use the name 'Fen Road' (later superseded by the term 'Fen Causeway'), and a section was published by Beloe (1893). Further studies were made by Fowler (1932), Kenny (1933), and Salway (in Phillips 1970, 216–18).

In the west the Fen Causeway crosses fen ground as a made-up bank of gravel linking mainland Peterborough with the islands of Northey, Whittlesey, and Eastrea. Its course cannot be determined on the high ground of the islands. Near Eldernell, the easternmost point of Eastrea, the road was *c* 1.3m thick (Hall 1987, 57–8). In this region there seems to have been a trackway footing according to reports of 'sticks' being found in 1937 (Garrood 1938). A worn coin of Vespasian found under the track suggests that the route was early in use.

From Eldernell the route continued as a canal, there being two intersecting straight channels crossing the fen, leaving at separate points 1200m apart. The shortest canal links Eldernell with the Nene at March, a distance of 5km; it survives now as a silty-clay roddon *c* 1m above the present field surface. The second canal, 7km in length, has a similar fill and links Eldernell settlements with the main western March site, Grandford. On the 20m wide 'roddon' is a gravel road, which was presumably made when the canal became silted and useless for water transport. The conversion of this canal into a road indicates that it was the more important and therefore the second stage of construction.

On March island the Causeway was exposed as a gravel spread (James 1986), and at the large Flaggrass site it crossed a river running close to March island, as well as connecting with another canal running south to Stonea island (Hall 1992, fig 41). East of Flaggrass the width of the canal in the peat fen was 15–20m, perhaps widened by removing peat for saltern fuel (Hall 1987, 41–2). However, the total width at the bottom of the 'roddon' is 88m with the top 27m wide and 1.5m high above the field level. The height falls to 0.9m and the roddon is nearly level with the ground surface where it enters silt. It has a gravel spread on the north, which is the later road. Butts of substantial timbers, probably belonging to a bridge, were discovered at the crossing point of the Old Croft River. The interpretation of this evidence is that the Causeway began as a canal dug through peat, but became blocked because it cut silty tidal watercourses. A gravel road was then constructed on the canal bank.

The line of the road through the Norfolk peat fen has been a source of confusion. Modern Ordnance Survey maps show a southern route which follows the course of a roddon. Phillips (1970, map 14) preferred a route further to the north which traverses both peat and silt. Earlier Ordnance Survey maps (eg the second edition of the 1:2500, sheets 68-10 and 68-11, 1905) use a mixture of the two, exchanging the northern route for the

southern one in the vicinity of Hill Farm, Nordelph. Both lines are correct, for there are two roads across Nordelph and Upwell, referred to here as the northern and southern roads.

The roads, both formerly canals, emerge from the silt at Upwell. The northern road has a series of straight alignments, and shows on the ground as a diffuse spread of gravel 6–7m wide. This road was the first to be constructed across the Norfolk fen. The southern road follows the 'roddon' of a canal with a sinuous course. The canal roddon is 50–65m at its widest, and the road lies on its southern slope, showing that it must postdate the waterway usage phase. It was made of compact reddish-brown gravel and had at least one resurfacing according to Fowler, a suggestion proved recently in a section (Leah forthcoming).

The close spatial relationship between the canal and the northern road is of significance. The channel alignment changes with the northern road. The distance between them varies between 50m and 150m over a distance of more than 3km. The date of the canal construction cannot be ascertained accurately, but the frequent occurrence of second-century material on both the northern and southern levees implies a relatively early origin. The two roads unite at about TF 5708 0044 and continue east as a single 'roddon'. A recent assessment of a roadside occupation site near Denver shows that there was development in the Neronian period (Gurney 1986, 135), which agrees with the Eldernell date for the first stage of activity.

Beloe refers to the road being covered by up to 2ft of silt (1893, 120) and flood silting was discovered during Kenny's excavation (1933, fig 2). The recently exposed section at London Lode Farm, Nordelph, showed that there was a layer of silt partly burying an early stage of the road gravel surface, and silt almost covered the whole of the upper surface after it had been abandoned (Leah forthcoming). A single event is not necessarily the cause of the silting; it could equally well have been a gradual process, as suggested by the multiple lamination discovered at London Lode.

## The Cambridgeshire Car Dyke

In the south is the Cambridgeshire Car Dyke, a channel cutting through pre-Flandrian deposits, linking the River Cam with the West Water. The canal is not exactly straight, being cut in various straight sections, in all 8km long. Early scholars have sought a route along the western fen edge to link with the Peterborough Car Dyke; this was not discovered during the recent survey and should not be expected. The West Water running to Benwick allowed water traffic to go either via the Nene to Peterborough, and so to the north, or to March and Wisbech.

Sites south of Waterbeach tend to concentrate on the Car Dyke, where it forms an impressive earthwork with denuded banks on each side, now spread out to a total width of 26m (although the Dyke may have been partially redug after the Roman period). Near the Cam the canal widens out and it is possible that there is a wharf next to the river. A Roman date was suggested by Fox (1923, 179–80). It is clearly associated with the large number of Roman sites in the area, and dating was provided by Clark's (1949) excavations at Bullock's Haste, Cottenham. Hartley (in Phillips 1970, 126) reconsidered the evidence. Sherds of 'Belgic' pottery were sealed beneath the upcast from the Dyke, and in the primary silt there were sherds of second-century date. Fourth-century sherds were found in the fills of the ditch. This evidence indicates that the canal was constructed in the late first or early second century and continued in use until the fourth century.

## Other roads and canals

Skertchly (1877, 247) recorded a causeway near Crowland, crossing fen ground. It consisted of closely packed stakes of sallow which appeared to be floored with brushwood upon which was laid gravel. It was found *c* 6ft (1.9m) below the peat surface and was associated with large quantities of animal bone; a bone pin and a jet disc ornamented with an intaglio figure were also found. Another road, the Baston Outgang, crossed Deeping Fen. It takes the shortest route across peat fen to silts and is visible on the ground as a linear band of gravel. On the silt the course of the road appears on aerial photographs as parallel lines that continue eastwards to Spalding.

A straight silt 'roddon' runs across Murrow and Calves Fields in Wisbech St Mary, representing a canal that connected two large rivers, the older and later courses of the combined Nene and Ouse. The canal runs for 2km and its ploughed-over roddon is now 50m wide (Fig 87; Hall forthcoming).

An example of a canalised natural channel is the Roman Nene at March. The river, now a roddon, has a curving course from Grandford, March (TF 3941 0015), as it makes its way to Elm, and was previously thought to be a natural stream (Hall 1987, fig 23). A section visible during dike cleaning in 1987 showed that the base of the channel was cut a metre or more into the underlying pre-Flandrian gravel, and it was filled with silt. The river therefore occupies an artificial course, even though it is not straight; probably a natural watercourse had been widened and canalised.

There are two minor canals in the the Norfolk siltlands. The main one, the Aylmer Hall canal, 60–65m wide, can be traced on aerial photographs, and more intermittently on the ground, for 5.6km. It runs from near Aylmer Hall, Tilney St Lawrence, to the bank of the Great Ouse at Magdalen. At the west end it fades out near a medieval drove. The other channel runs on a south-west to north-east line approaching the Aylmer Hall canal, generally no more than 0.5m high and about 25m wide (Silvester 1988a, 54, 59).

Most of the canals appear to have been made for transport rather than drainage. They nearly all connect active rivers, and the Fen Causeway cuts directly across the fen in a manner that would not help drain it.

Apart from the possible interpretation of the Car Dyke as a catchwater, there is no evidence from the Fenland of any drainage works by the Romans. The breaks in the Car Dyke may mark off sections constructed on different contours, cargoes being moved from one boat to another over the intervening stretches, as was done with eighteenth-century canals until tunnels were made to connect sections interrupted by hills.

### Finds from canals and rivers

Several extinct rivers and canals have revealed the cargoes of sunken boats.

About 20 querns were discovered in 'Crowland Common' (Hallam 1970, 274) from the Roman course of the Welland. The metalwork from Whittlesey Mere is noted below, and a large number of pottery lamps found in the old course of the Nene, near Whittlesey, were presumably lost on their way from the Nene Valley kilns (Hall 1987, fig 40, A8). Similarly, pottery found at Waterbeach probably came from a boatload of Horningsea products lost in the Car Dyke.

At Swaffham Bulbeck large stones and pottery were found in 1942 in an extinct meander of the Cam. These were interpreted as the remains of a barge cargo that had sunk in the river (RCHM 1972, 112). A hoard of Roman pewter and various beakers were discovered near the Lark in about 1932 'in the bed of an ancient river' at Elderberry Farm. The finds were dated to the third century (Lethbridge and O'Reilly 1933, 166).

## The fen edge and islands

### Settlement: sites of regional importance

The fen edge and the southern fen islands were dominated by a few large sites that may have controlled the rural sites in each sub-region.

In the north, Horncastle was a major site with apparent Iron Age beginnings (Field and Hurst 1983). It developed into a walled Roman enclosure and had unwalled settlement covering at least 54ha. On the north-western fen edge two large sites occur at Billingborough. One of them, Toft Hills villa, produced abundant finds of pottery, limestone building rubble, tiles, coins, tesserae, and, recently, a rare medallion of the third-century emperor Carus. A similar site occurs in Heckington, but some large fen edge sites along the landward side of the Car Dyke were probably rural settlements, using locally available building stone (Hayes and Lane 1992, 90).

Bourne was a substantial Romano-British community, probably a small town and political centre, with 'ribbon development' sites. Its communications were good, with two roads and the Car Dyke, and there were wealthy buildings with tessellated floors. Among the many rich finds is a small bronze figure of a horse (Hallam 1970, 254; Birkbeck 1970, 1–3). Peterborough has several large sites on its hinterland, associated with the major town of *Durobrivae* and an extensive pottery industry. On the fen edge at Stanground a large stone building with red roofing tile probably formed a local centre.

On the Fenland islands a substantial building, discovered during the survey at Stonea Grange, Wimblington, near March, was probably the most important Roman site in the whole of the southern Fenland. When first identified, it appeared as a raised mound of building stone with debris of ceramic tile and plaster, about 73m in diameter, standing 0.5m above the field surface. Excavations by Potter and Jackson for the British Museum (1980–4; Potter and Jackson forthcoming) showed that the first phase was a large stone building, 16m×16m, with an apse on the west side, erected on a stone platform (Fig 69). Stone is not locally available and probably originated from the Peterborough region, about 30km away. The building was heated with a hypocaust system and had plaster painted like marble and glazed windows. The massive footings suggest that it was two or three stories high, and would have appeared as a tower dominating the fens. It was constructed in the first part of the second century AD and a corridor and hall were added soon afterwards. A parallel for the tower structure is to be found at Anguillara near Rome (Potter and Whitehouse 1982).

The site was laid out with a grid of gravel roads forming *insulae* of urban character, with wooden buildings, wells, and clusters of pits. Both the stone tower and many of the wooden buildings were demolished in the early third century, but parts of the site were occupied during the third and fourth centuries. A large pit, filled in the Antonine period, contained much organic material including wooden artefacts (Potter and Jackson forthcoming). Near the main site was a probable Romano-Celtic temple of square plan. Several cult objects have been looted from the site in recent years, the most striking being a gold votive tablet dedicated to Minerva. These objects presumably came from the temple.

The size of the Stonea structure and the expense involved in assembling its materials imply great wealth. It was possibly a political successor to the nearby Iron Age enclosure (Stonea Camp, chapter 6), but in the third century AD became of little significance, being superseded by Grandford and Flaggrass, at March. Stonea island was linked to Flaggrass by a canal, but this, unlike other March canals, was not converted into a road when it became filled with silt. The large Iron Age site at Langwood, Chatteris, continued into the Roman period and it too had a stone building, the only other one known in the southern Fenland (Evans forthcoming).

There are no substantial buildings on the south-western fen edge, but, at the south, Swaffham Prior revealed debris of a large building, and a villa is known at Burwell. Soham has a villa, according to cropmark evidence and from discoveries of ceramic tiles and a hypocaust. At Fordham in 1971 a villa yielded painted plaster and hypocaust tile. Isleham villa yielded finds


*Fig 69 Plan of Stonea Grange showing the main stone building (from Potter and Jackson forthcoming)*

of stone and ceramic tesserae, hypocaust and other tiles, painted wall plaster (Lethbridge 1937), and a face mould (Briscoe 1948; CUMAE records 1954).

In Suffolk, a large site lies in what was later medieval fen at Mildenhall (Briscoe 1961). Partial excavation revealed floor levels and tesserae. During the survey many sherds, pieces of tile, and other finds were recovered, spread over eight modern fields (Martin in prep a).

Along the Norfolk fen edge at Feltwell, Little Oulsham villa was excavated in 1962–4. The plan was of simple corridor type with a range of five rooms and bath-house (Gurney 1986, fig 6). Partial excavation of a villa at Methwold revealed stone foundations of a bath-house, several rooms with a hypocaust and tiled floors, and debris of roofing tiles (Gedge 1882).

## Rural settlements: earthwork sites

Roman activity in the Fenland appears to be predominantly rural. Drowning of many sites during the Middle Ages preserved low-lying settlements as earthworks. They were slowly exposed after Fenland drainage in the seventeenth century, and most of them have been ploughed, especially during the last 50 years. There are now only seven surviving as earthworks on the fen edge and islands; at Thorney (two sites), Whittlesey, Cottenham, Swavesey, Wicken, and Hilgay. They will be discussed first because of their interest and importance. Three more earthwork sites lie in the silt fen, at Horbling, Pointon, and Thorney, with a fourth near Holbeach Drove, lying outside the surveyed area. It is convenient to include a description of them here. Only Holbeach and Cottenham were previously recognised as significant earthwork sites, and both are scheduled monuments. Horbling and Hilgay are the most impressive among the others.

Any earthwork site of Roman date is so rare in lowland England that all these sites have value for their visual appreciation as well as their local Fenland significance. They are extremely important for potential structural and environmental remains, doubtless very fragile, which are likely to provide data on the management and economy of the farmsteads.

Horbling Fen earthworks are the most extensive in the whole Fenland. The centre of a large settlement complex is based on three hollow ways meeting at a T-junction. Networks of enclosures are defined by low banks marking property boundaries and platforms of probable house sites (Fig 70). A smaller site at Pointon Fen has a droveway and ditches, but at a site near Holbeach Drove, on the Lincolnshire-Cambridgeshire border, there are several hectares of roddons, droves, and paddocks, partly overlain by medieval strips.

The siltland Thorney site at Chestnut Farm contains part of a long drove in an area rich in cropmarks. There are some paddock boundaries and a few smaller enclosures, all that remain of a large complex. At Podehole Farm, Thorney, a field system with a hollow droveway and enclosures defined by ditches covers 3ha. It, with a similar 4ha site at nearby Bar Pastures, forms part of another large complex, upwards of 3 sq km in area, now visible only as cropmarks. Immediately south of Bar Pastures a ploughed, raised area yields burnt stone, domestic bone, and sherds of both Iron Age and Roman date. In Whittlesey Washes a rectangular network of enclosures with substantial ditches marks another significant earthwork site.

The well-known scheduled earthwork site at Bullock's Haste, Cottenham, includes the Cambridgeshire Car Dyke and is surrounded by an extensive series of cropmarks. A series of rectangular enclosures lies next to Car Dyke, aligned at 45 degrees to it, and there is a droveway going through two right angles among a network of ditched paddocks (Phillips 1970, 213, fig 6, and 124, pl XVII; Browne 1978, pl Va). Like Horbling and Thorney sites, Bullock's Haste is reminiscent of medieval settlements, the drove being a hollow way and the enclosures defined by ditches that were probably flanked by hedges. One of the enclosures has a series of narrow, short ridges within it, each about 20× 4m, intepreted as lazy beds (Clark 1949). The ridges are not large enough to be considered as prototypes of

medieval ridge and furrow. More blocks of the beds lie on the north-east side of the Car Dyke.

At Swavesey there is a small earthwork in the fen, and partially ploughed sites at Braham in Ely and Snailwell may have undisturbed features preserved in adjacent pasture fields. Wicken has rectangular earthworks of paddocks and a pond, the remains of a small unremarkable rural site lying next to fen, but with good potential for preservation. A few Roman sherds came from arable land nearby.

The most interesting Norfolk rural site is at Hilgay, where the earthworks of a small farming settlement are perfectly preserved (Silvester 1988b; 1991, 90–1). These consist of two raised platforms set in rectangular and square enclosures (Fig 71) marked by shallow gullies. Two ring ditches lie near the farmstead, 10m and 15m in diameter, with ditches 1m wide and about 0.3m deep. The central areas are flat. These circular platforms, probably stack-stands, are the only earthwork examples of the ring ditches known as cropmarks in the silt fens (Hall 1978; Wilson 1978; see 'Fen circles', below). South of the main site a midden produced sherds from animal burrows dating to the late third and fourth centuries.

*Fig 70 Aerial photograph of Horbling Roman earthworks, with tracks (hollow ways), enclosures, and presumed house platforms (TF 16 34); part of a remarkable complex in the region (photo: Cambridge University Committee for Aerial Photography, copyright reserved; CCF 016)*

## Rural settlement in arable land

Most Roman sites lie in modern arable fields, and are frequently visible as areas of dark stained soil yielding sherds, animal bone, and other occupation debris exposed by the plough.

Settlements in the north of the Fenland were not prosperous, as judged by the ceramic evidence (Lane forthcoming). Sites in the Stickney region produced only 5 samian and 20 colour-coated sherds from a total of 2040, the remainder being mostly grey wares, with a little pottery from Midland mortaria kilns. The isolation of the region probably impeded trade, although a wider variety of wares has been recorded at Horncastle, the nearest town (Field and Hurst 1983). The western fen edge has a range of small rural sites, as at Hacconby and Dowsby, where one site stands in a large enclosure of probable Iron Age date. Three sites at Market Deeping lie on artificial mounds suggesting that precautions were taken against flooding.

South of Peterborough the upland was well settled on high boulder clay, especially at hilltop locations (Glatton, Wood Walton, Fenton). The same locations were utilised at Ely; they possibly represent 'bothies' for a shepherd or grazier, placed on a local high spot giving a good view and suitable for controlling stock and population. There was little Roman occupation on the south-western fen edge, and the fen was too wet to support habitation. However, the fen islands of Cambridgeshire have an abundance of settlement, with two large sites at March (Grandford and Flaggrass; Hall 1987, 40–3; Potter and Potter 1981). Chatteris also appears to be a significant region, with several large sites continuing from the Iron Age. Paddock boundaries of ditches and low banks, visible at Chatteris, Honey Hill, in 1978, showed that there had been only a single house site with occupational debris; the remainder of the enclosures had dark-stained soil with little domestic refuse, suggesting that they were used mainly for animals. As expected there are many sites in the Stonea and March areas relating to the large centres there.

The Isle of Ely has much rural settlement, although it is sparser towards the south-west, the predominant Ampthill and Kimmeridge Clay soils not being preferred for settlement. On the edge of Stuntney island 'an oak structure...dug out' in 1901 was probably a landing stage (OS and CUMAE records). A pottery lamp showing a winged victory with an inscription on the shield, *'annum novum faustum felicem mihi'* 'a prosperous and happy new year' (Fell and Liversidge 1953), came from this area.

In the south-western fen the main area of settlement was on the gravels of the West Water, relating to the southern Car Dyke. The terrace yields a cropmark complex with many droves and enclosures, showing that the whole landscape was intensively used. In addition to previously available evidence, a new interpretation has been made of the large quantity of aerial photographs (Hall and Palmer in Hall forthcoming, fig 67). It is possible to distinguish between occupation areas and

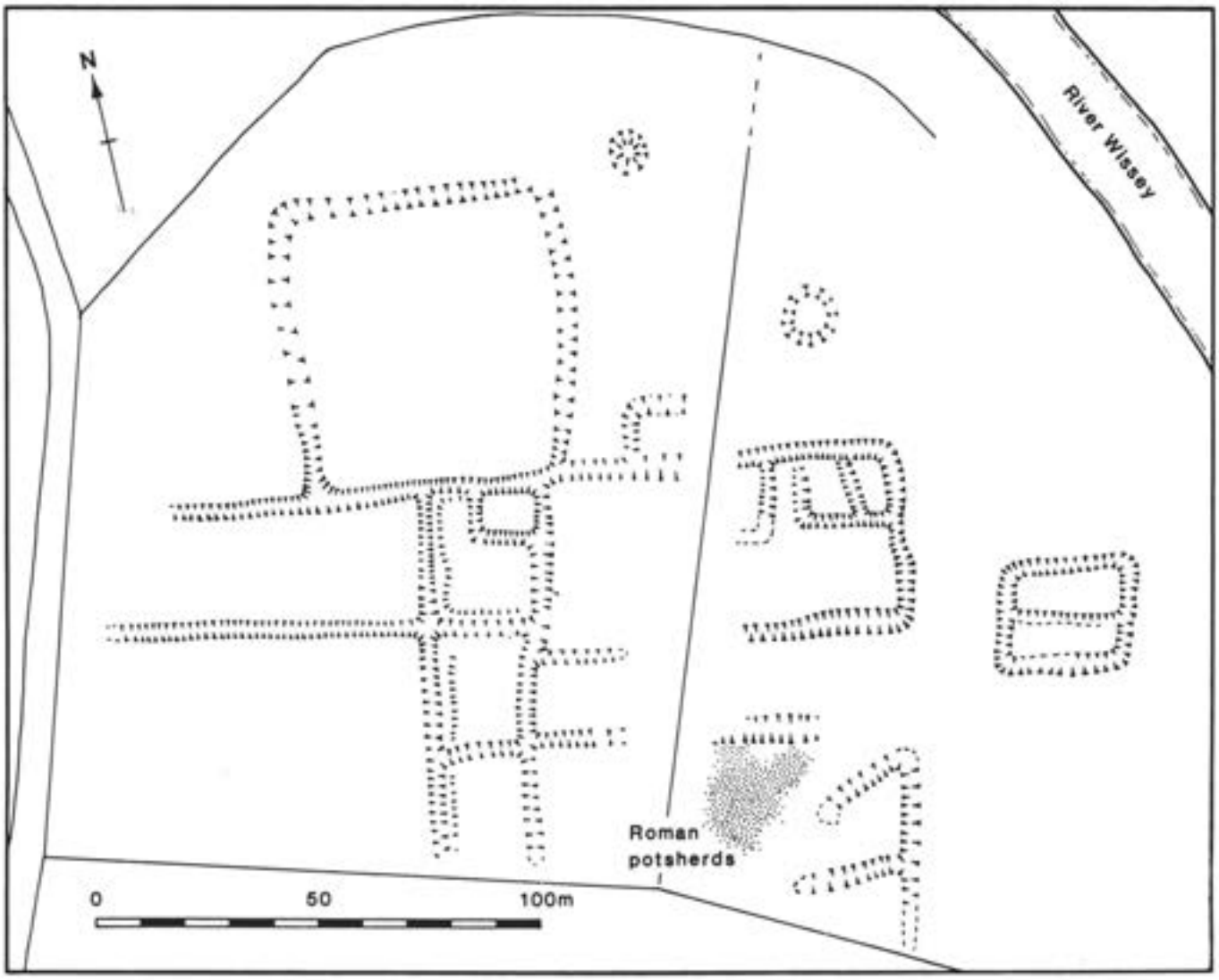



*Fig 71 Plan of Hilgay Roman earthworks with enclosures and two ring ditches that are probably stack drainage gullies (from Silvester 1988b)*

thinner scatters of sherds that represent agricultural dispersal. Stony Hills, Waterbeach, was possibly the 'centre' site, extending to 5.4ha with dense occupational debris dating from the early Iron Age to the late Roman period.

A range of small Roman sites continues all around the south-eastern fen edge at Horningsea, the Cambridgeshire Swaffhams, Wicken, Snailwell, and to Mildenhall. There are no sites in the main body of Fenland at Isleham and Mildenhall, but near the fen edge north of Mildenhall are several large sites, as well as the probable villa already mentioned. Some were in use throughout the Roman period, while others are late. Roofing tile and glass were recovered from several sites, and postholes of an aisled wooden building were discovered during a partial excavation (Martin in prep a). Substantial sites occur on the upland as well; at Lakenheath some produced glass, coins, roofing tile, and quern pieces, as well as much pottery. Several inhumations were found at a site lying near the Eriswell boundary, and structures were excavated nearby (Briscoe 1953). On the Norfolk fen edge, sites are sparse as far as Marham, but the north side of the Nar valley seems to have attracted more attention.

## Industry

### Ironworking

Ironworking was not a major Fenland activity, but a few sites have been found along the fen edge. Charcoal made from fen woodland is a possible, but unproven, reason for the occurrence of the sites. At Morton, a spread of iron slag forms an industrial complex adjacent to the Car Dyke. On the Peterborough hinterland there is much iron slag, but Roman and medieval sites are indistinguishable, and the source of fuel would have been upland wood. Ironworking probably occurred at Pentney, Norfolk, where there was a dense spread of black iron slag covering about 0.2ha, although, again, a Roman date has yet to be verified.

### Pottery kilns

As with ironworking, pottery-producing sites occur along the fen edge, probably because of the accidental occurrence of suitable clays rather than the advantages to be gained by the proximity of the Fenland, although the use of charcoal as fuel could have been an attraction. In the north-west, at Thurlby, pieces of kiln furniture, probably from a pottery kiln, were recovered. A site

yielding sherds and kiln debris lies near Cow Bridge, Yaxley, but the main fen edge production was at Stanground, an industrial area with many kilns that were outliers of the extensive Nene Valley industry. The kilns were constructed of limestone and tile, and produced vessels with reduced fabrics. Individual kilns could be identified on the ground from the concentration of large wasters and broken kiln furniture. One of them, excavated by Dannell and Hartley in 1965 and dated to the first half of the third century, produced wares in a grey-white fabric with a grey-black 'metallic' slip (Dannell 1973). The site runs under alluvial deposits next to the river where there may be waterlogged remains; a wharf and causeway have been identified (Fox 1923, 223; Page *et al* 1926, 251). It is possible that the kilns formed part of a series of industrial sites making use of Oxford Clay, suitable for potting, and fen peat for fuel.

In the south there were pottery kilns at Over, in production during the late first and early second centuries. Two more kiln sites have been identified on the ground from the large quantities of grey ware sherds and kiln debris exposed (Hall forthcoming). Horningsea is well known for the Roman pottery kilns at Eye Hall, producing coarse wares in a grey fabric. The total area where kilns have been found is now known to be about 8ha. Kilns were first discovered during coprolite quarrying in 1884 and excavations were carried out in 1901 (McKenny Hughes 1904) and 1914 (Walker 1914, site 1). The date of production was stated to be first to third century AD. In 1977 levelling of a mound south of Eye Hall revealed Roman kiln debris over an area of 25×35m. Each kiln was clearly identified by a red annulus defining the ovens and a darker linear stain representing the flue. Large vessels were being produced at this part of the manufactory. Other kiln sites lie nearby, and away from the main area are two separate concentrated areas of grey ware pottery sherds, 10m and 20m in diameter, with some burnt clay material, indicative of pottery kilns. They are important, being isolated, discrete examples, not confused by multiple use.

At Lakenheath several kilns have been identified, some producing first-century burnished wares, similar to products from West Stow (Martin in prep a). On the eastern fen edge, at Shouldham, pottery kilns operated in the third and fourth centuries. Two were examined in 1970 and other kilns are marked by extensive spreads of pottery sherds of Nar Valley fabric (Silvester 1988a, 133).

## Metalwork and coin hoards

Various pieces of metalwork and several coin hoards have been discovered over the years. Many are poorly provenanced and do not add much to the general results of the fieldwork.

Market Deeping has produced several coin hoards. Three ritual crowns and a coin hoard came from a site complex extending over 9ha (Painter 1971, 319–21). Another site produced 515 *antoniniani*, and from 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 (Hayes and Lane 1992, 190).

Three pewter plates were found in Whittlesey Mere, from Ramsey a coin hoard was recovered near Worlick Farm, and a hoard of third-century coins came from Stonea Camp. Metalwork is known from the Ely region; Lethbridge and O'Reilly (1933, 129–32) reported a late Roman pewter jug in the roddon of the Ouse near Quanea, Ely, and four bronze statuettes, not of very good quality, are known from the general area, some 'probably from Ely' (Heichelheim 1937). A more spectacular find was made in about 1840 with the discovery of a bronze skillet, engraved with animals and an inscription (Johnson 1840). In the Cole Ambrose Collection at Cambridge University Museum of Archaeology and Anthropology a pewter bowl 'from near Ely' is inscribed with a chi-rho emblem. Other stray finds from Ely include a bronze hare. At Sutton a bronze statuette of Hercules was found before 1891 (Heichelheim 1937, 37) and a Christian hoard of six large platters and a pewter tazza of the fourth century were discovered in 1898 (Toynbee 1964, 176).

From Soham a hoard of coins was discovered in 1950, dated to the first or second century; there were two gold coins, 261 of silver, and one of copper (Phillips 1970, 228–9, site 5475). Near Fordham, Roman brooches and other metalwork have been recovered. A hoard of pewter was found in *c* 1870 near Landwade (Lethbridge and O'Reilly 1933, 165).

A fuller summary of the metalwork and coins discovered before 1975 is given by Brown (1976) for Cambridgeshire. From the siltlands none of the finds is very rich or impressive, which is consistent with a rural economy struggling under hostile conditions. The richer finds come from the southern fen islands and edge, particularly Stonea, and where there were villas or shrines (see below) nearby. The siltlands of Lincolnshire have some evidence of a better living standard, judged by the pottery.

In Suffolk much metalwork is known, some as a result of recent metal detecting (Martin in prep a). The most notable discovery remains the Mildenhall Treasure, a hoard of 34 pieces of high quality silver tableware found in 1942 (Painter 1977). The findspot lies on the upland, and probably relates more to sites in that region than to any particular Fenland activity.

## Burials

No major cemetery has been found around the fen edge, but there are many examples of single or a few burials. In Farcet Fen, a burial discovered in 1906 was covered by a stone slab and a skull was ploughed out later. This and burials reported from Stanground and Horsey (at TL 2243 9573) probably relate to Roman sites at Whittlesey or Stanground (Hall 1987, 57–9).

A skeleton in a stone coffin was found on the top of Thorney island, Ely, in 1981 (Taylor 1984).

There was no dating evidence, but it is most likely to be related to a Roman site lying nearby on the fen edge (Hall forthcoming). A cremation was discovered in an urn at Sutton in 1955 (Phillips 1970, 215); the remains had been placed in a large storage jar with another placed inside. Burials in the silt fen occur near several of the sites; they are all inhumations without any recorded grave goods.

Several inhumations have been discovered on the Suffolk fen edge during partial excavation and disturbance by building work (Martin in prep a).

### Shrines

At Haddenham a remarkable Romano-Celtic shrine was placed on top of a barrow. Cropmark evidence showed that there was an inner and outer rectangular enclosure (as well as the barrow ring ditch). The site was earthwork until 1953 when the rectangular enclosures were visible as banks with ditches on the outside (Bester and Bromwich in Phillips 1970, 206). More pottery was discovered during the survey, and excavation in 1983 revealed two phases of shrine activity. The barrow had been deturfed in the mid second century, and a masonry-footed octagonal cell constructed on its southern edge, placed directly over a cluster of secondary cremations in the barrow ditch. In the floor of the octagon were many sheep mandibles with hooves laid out on either side, and in two cases a coin had been placed in the mandibles. The shrine entrance was at the south-east, marked by a gravelled and ditched track; the whole was enclosed by a rectangular ditch. In the north-west corner of the compound a series of intercutting pits contained four complete sheep skeletons, each accompanied by a pot. A boar burial was found at the south-east of the compound. In the late third century the shrine was rebuilt as a square-post structure on the crown of the barrow mound and surrounded by a ring of posts partially encircling the barrow. Two more sheep mandibles were placed in the structure. Flooding in the later fourth century caused the site to be abandoned and the timber structure was dismantled. A rich hoard of votive metalwork discovered 4km away in Willingham Fen in 1857 may be related to the Haddenham shrine (Evans and Hodder 1984). The metalwork discovered in 1953 is nearly identical to a baton end from Willingham. The nearest parallel for a shrine with animal bone deposits is Brigstock, Northants (Greenfield 1963, 234–5). It is possible that the Haddenham and Willingham shrines served the remarkable concentration of Roman sites lying on the gravel terraces from Over to Waterbeach, along the West Water.

The shrine at Willingham was identified by cropmarks of a square with internal enclosure divisions. This appears to be the place where a hoard of votive metalwork was discovered in 1857, placed in a wooden box with two large semi-transparent 'beads'. A few objects survive: a bronze sceptre with animals moulded on it, two horsemen, a bust of Minerva or Mars, heads of an owl, a raven, and a bull, two small human heads, a ram's head, a bust of a three-horned goddess (Cybele), and a bust of Antoninus Pius (Babington 1883, 84; Fox 1923, 214; Toynbee 1964, 124, no 3, 8; Greenfield 1963; Green 1976; Browne 1978, pl XIV; Taylor 1985, 47–8).

At Hockwold, excavated structures in Sawbench Wood (1962) have been interpreted as a Roman temple set in its own enclosure, which was in use in the late third/early fourth centuries AD (Gregory 1982, 371). A hoard of early silver drinking cups found in peat at Blackdyke may be a votive deposit (Johns 1986).

## The silt fen

### Topography

The Roman period is the earliest phase during which settlement became widespread on Flandrian marine silts, although, as has been shown, activity had occurred during the Iron Age in Lincolnshire, at Wrangle, Pointon, Gosberton, and Market Deeping. In Cambridgeshire the silt of the present-day land surface seems to be the same as it was in Roman times, but in both Lincolnshire and Norfolk many of the surface deposits on the seaward side are of later date, and part of the Roman landscape and its sites lies buried.

Hallam (1970, 41) was the first to suggest that the Norfolk upper silts were of post-Roman date and had submerged earlier occupation levels, a view more recently supported by Gregory (1982, 367). Confirmation was obtained at Terrington St John where a buried Roman ditch produced pottery and briquetage *in situ*, exposed in a dike side (Silvester 1991, 152). Other sites have been discovered as linear spreads of pottery adjacent to dikes, at Walpole and elsewhere.

A similar inundation has been observed in Lincolnshire where silts partly bury Roman sites lying close to Wrangle Tofts. At Pinchbeck North Fen, marine silt and silty clay cover the Roman land surface, and sites are represented by stray sherds disturbed from buried levels (Hayes and Lane 1992, 113). One Pinchbeck site lies on a low mound spreading on to surrounding silt. The mound was interpreted as the top of a partly buried roddon. Nearby, another site produced a few sherds from a modern dikeside, dating to the first–fourth centuries AD. Air photographs reveal a fragmentary and incomplete pattern in this region; Phillips (1970, map B) could not identify any sites east of the South Forty Foot Drain.

A third- or fourth-century date of abandonment is indicated by a group of Pinchbeck sites that lie just off the silt but close enough to make it improbable that they were inhabited during a period of high-energy inundation. The earliest flooding date is probably during the fourth century AD, and the presence of early Saxon sites (AD 450–650) on the silt in the north suggests that it was over by the sixth century. Gosberton and Quadring produced a simlar pattern of surface finds east of Hammond Beck where there are no cropmarks.

## Settlements

Settlements fall into two main categories, sites that lie on the high flat silts nearer the Wash, and salterns which lie mainly on the edge of the Roman fen, closely associated with roddons. Many sites develop very detailed cropmarks under suitable conditions (Figs 72, 73).

### Sites on the high silt

Colonisation of the Lincolnshire silt was not a gradual movement eastwards, following a retreating sea, but a rapid take-up of prime sites followed by infilling at less desirable locations. Precise dating of the settlement process is difficult, but landward sites seem prosperous in the earlier part of the Roman period. Later there was a general decline in prosperity in these locations, judged by the quantity of colour-coated wares. In contrast, 'rich' sites in Gosberton and Quadring, lying on the silts to the east, have large amounts of colour-coated late wares. At Cowbit and Crowland there was a similar eastward movement of settlement location through the Roman period.

The Gosberton sites occur on levees of the higher roddons, at 2.3m OD, and almost 30% of the 6712 sherds collected during the survey were fine wares. Finds of Roman tiles and limestone building rubble indicate a degree of permanence that does not accord with the image of poor people eking out a precarious living in a threatened landscape. One Gosberton site was long used, with Iron Age, Roman, and early and middle Saxon sherds at a high location (Hayes and Lane 1992, 45).

By contrast there are only 13 sites on the high silts of Cambridgeshire, dating from the second and third centuries AD. None of them is associated with cropmarks and the activities occurring are unclear (Hall forthcoming). There is no briquetage, so they cannot be salterns (except one), and there are no particularly distinctive finds. There seems to be no significant accumulation of marine deposits in Cambridgeshire after the Roman period; the sites are exposed on the present ground surface, at about 2.5m OD. Two Newton sites lie in slight hollows, rather like some of the sites in Lincolnshire, but there is no other evidence of a buried landscape.

In Norfolk, like Lincolnshire, many of the sites are partially buried and probably lie on roddons (Silvester 1988a, 154). A site away from a roddon on the level occurs at Walsoken, and there is other Roman activity in the western parishes. The nature of the settlement is difficult to interpret. In Walsoken there are 14 sites, in Walpole St Andrew 3, in Walpole St Peter 23, in West Walton 19, and in Terrington St John 23. None is datable to the first century AD and only one has possible fourth-century material; the majority belong to the second and third centuries.

### Salterns and sites on roddons

One of the major activities in the Fenland during the Roman period was the production of salt, manufactured by the evaporation of brackish water collected from tidal streams. The sites are characterised by smashed pieces of briquetage, derived from salt pans and their supports. The fabric is straw-tempered, porous, and friable, varying in colour from yellow to brick red and black. On recently ploughed sites large fragments of supports survive, either bricks or cylindrical columns, and occasionally 'bars' similar to the furniture found in pottery kilns. Some pieces of briquetage are green-glazed, proving the presence of salt.

Aerial photographs reveal what appear to be channels, sometimes turning to form loops that run approximately perpendicular to the dark centre band in the roddon. One of the most detailed examples is at TL 466 991 in Upwell, where a number of straight channels can be seen running through and from either side of a roddon. Other examples occur at Littleport and Wimblington (Hall 1992, fig 40). It is likely that many of these channels were made to draw saltwater from the streams and allow debris to settle before evaporation, as found at the Middleton excavation (below). Once clarified, brine could then be boiled down using as fuel fen peat dug from nearby or brought in from turbaries. Fen edge roddons were well located for saltern exploitation, being high and dry, and suitable for dwellings and salt pans. The distribution of all the saltern sites, as in the Iron Age, is very much at the fen edge; here it would have been easy to get brackish water from small brooks as well as giving each site its own area of peat nearby.

Salterns have been recognised in Lincolnshire for many years (Phillips 1970) and were recently fully discussed by Lane (Hayes and Lane 1992, 213–29). In Cambridgeshire, briquetage, 'wattle and daub with clay floors...in most cases apparently destroyed by fire', and 'fire-bars' had been found during the 1930s, but in spite of S J Hallam's (1960) suggestion that saltern supports came from a site at Littleport, the saltern industry was not identified (Phillips 1970, 319–23). Norfolk, too, had no previous record of salt production.

In the north, salt production at Wrangle and several other places on the west of the band of marine silt continued from the Iron Age. Many Roman settlements were located south-east of their nearby related Roman salt pans (Billingborough, Pointon, and Sempringham; Hayes 1985, fig 8). This was probably to avoid smoke in the prevailing wind. Nearly all the settlements had associated briquetage, and dated from the earlier part of the Roman period. The briquetage of the northern sites was better preserved than elsewhere, with many complete cylindrical supports surviving.

In western Lincolnshire there is a marked zonal settlement distribution, with a band of sites almost entirely devoted to saltmaking lying at the fen margin. This is a striking feature of the distribution of Roman sites in the Billingborough region, where many salterns in the peaty, central waterlogged zone continued throughout the Roman period. The source of saline water for these sites is not now apparent. More early Roman settlements and salterns occur at Bourne and Cowbit.

In Cambridgeshire nearly all saltern sites lie on roddons along the silt edge (Fig 74). There are five salterns in the region west of Wisbech, but Elm and Upwell are the parishes with the greatest number of salterns, 33 out of 43 and 19 out of 26 sites respectively. The reason for so much activity is because the main course of the Nene ran through Elm from March to the sea, and the Fen Causeway crossed Upwell. No particular site dominates at Elm, but there are large complexes near Waldersea Hall, Coldham, and Needham Lodge. Skeletons have been found at six of the sites, suggesting domestic settlement as well as industrial activity.

Several salterns occur near March, one at Norwood having been partially excavated (Potter 1981, 104–16). The Flaggrass site is now much mutilated and reduced in size, but there are several hectares of briquetage, which in one sondage was more than 2m deep. At Littleport saltern sites occur in great density along the roddon of the Old Croft River. The largest site, at Dairy House Farm, first identified in 1931 when it was earthwork, covers 3.2ha and is a conglomeration of many small subsites with large quantities of briquetage and pottery. In 1931 there were raised platforms 5–8m wide, some of them circular with a complex of ditches forming 'celtic fields'. The site was ploughed in 1948 revealing 'small brick hearths and clay daub reinforced with straw chaff of wheat' (Fowler 1949, 7–9). The interpretation of the platforms as huts may be correct, but it is equally likely that some, if not all, of them were saltern sites, visible (1988) as concentrations of briquetage. There are several other complexes along the river, as at Apes Hall, where Fowler also interpretated briquetage as 'huts' in 1939 (Phillips 1970, 234, site 5590W).

Salt production occurred in Norfolk, but the amount of briquetage discovered was small, only two sites producing it in quantity. Four sites at Terrington St John produced briquetage fragments, one being exposed in the side of a drainage dike, and the briquetage including a complete rectangular slab. The burial of sites makes it impossible to estimate the extent of salt manufacture in this region from surface evidence. Most salterns are associated with the Fen Causeway. Every spread of

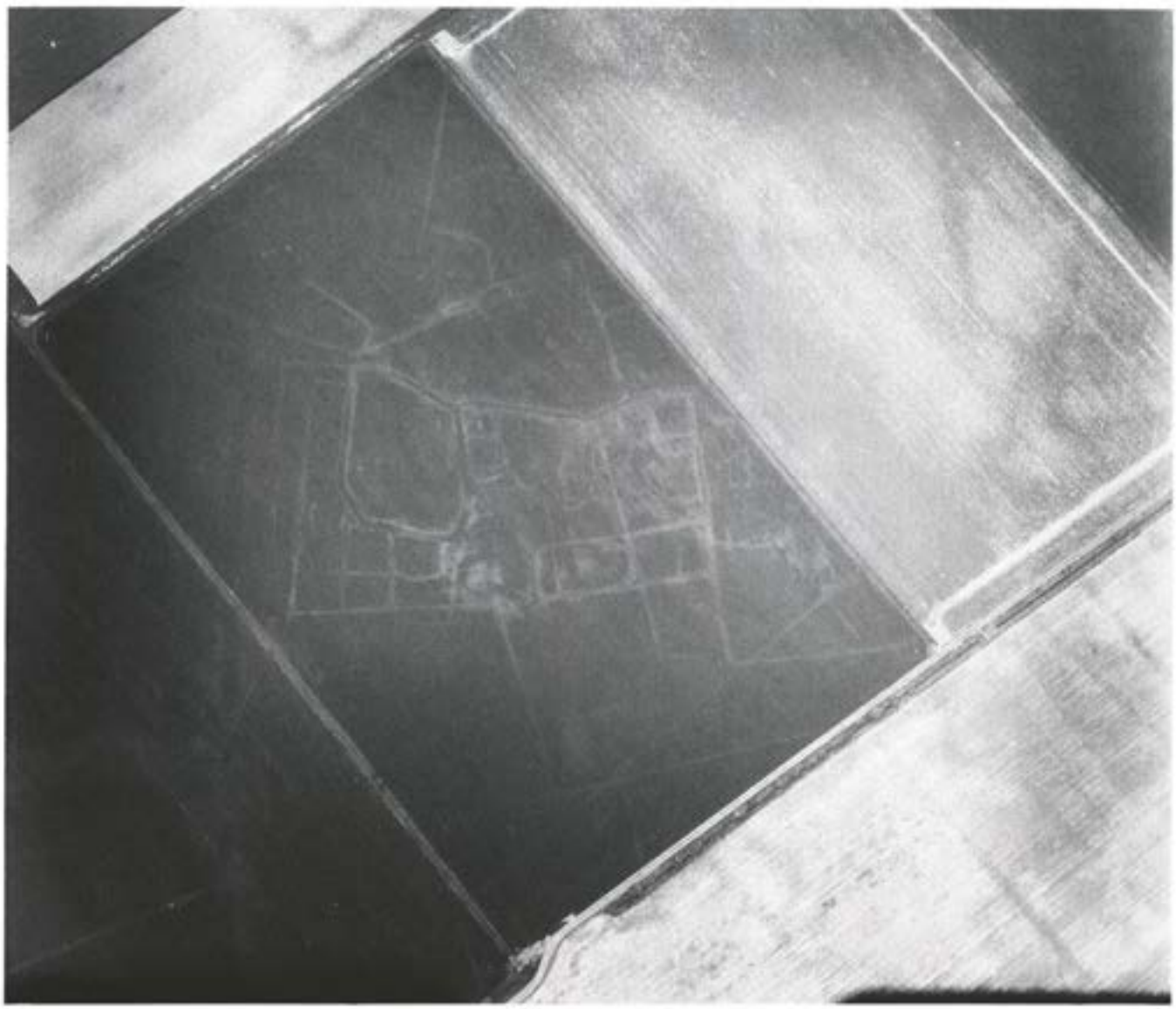


*Fig 72 Aerial photograph of a rural Roman site in Pinchbeck Fen, Lincolnshire, TF 19 23 (from Hayes and Lane 1992, 148, site 46; photo: Royal Commission on the Historical Monuments of England, NMR 2117 1047 (1982))*

*Fig 73 Aerial photograph of an Upwell settlement and saltern site lying on a roddon, TL 47 95; the silt fen soils are particularly sensitive to cropmark formation (photo: Rog Palmer; 90.25/1 (1991))*

debris was probably a saltern site, the canal and some of the natural creeks that fed into it being tidal. At Denver, excavations in 1960 proved that salt production was the main activity (Gurney 1986, 93).

In the Nar valley a saltern located on a natural mound at Blackborough End, Middleton, lies hard by a roddon. Excavation showed that there were two stages of usage. A circular ditch was linked to feeder channels and had a central clay-lined pit, presumably used as a settling tank. Foraminifera analysis showed that there was no concentration of brine made in the pit before evaporation. Immediately nearby was a boiling hearth with bases of pedestals used to support clay evaporation trays. There was an abundance of briquetage all over the site. In a second stage of activity another supply channel led to hearths and a settling tank on a different part of the site (Fig 75; Leah 1992, 49–54).

Salterns further away from the central silt region lie on major roddons penetrating into peat fen, as well as on adjacent dryland islands or peninsulas. Examples are at Wimblington, Manea, and Littleport. The site furthest inland is at Littleport, 20km from the Wash at Wisbech.

Twenty sites lie on roddons west of Wisbech (at Parson Drove and Leverington), but there was no saltern activity. They were probably connected with animal raising, as suggested by the extensive cropmarks of droves and enclosures, the sites being placed on roddons for protection against flooding.

The date of the pottery collected from the Cambridgeshire sites ranges throughout the Roman period. It has no particular significance topographically in that it does not indicate that there was any abandonment with an increasing watertable. Nothing of first-century date has been identified in Norfolk, but occupation spans the remainder of the Roman period, as was found earlier by Salway (in Phillips 1970, 9).

Many of the settlement sites discovered coincide with areas in which clusters of small enclosures occur. The Cambridgeshire silt fen has a total of 86 field-surveyed sites of which 61 coincide or are immediately adjacent to ditched features mapped from air photographs. Of these 61 there are 32 sites at which the aerial evidence also suggests 'site' rather than field, paddock, or track. Spreads of occupational debris coincide with cropmarks or soilmarks in Norfolk also. Between the Bedford Rivers several sites at Denver, Downham West, and Nordelph overlie or are near small enclosures.

In the Cambridgeshire silt fen there are few overlapping ditched features revealed by air photographs. Such superimposition, due to the redesigning of enclosures, is common throughout most of lowland England. This may indicate that the sites had a short term use, the community moving on to another suitable plot, or that there was 'static' settlement during which time existing ditches were recut as necessary.

## Turbaries

The best known and most extensive Fenland turbaries occur in Cambridgeshire at Christchurch, Upwell, covering over 60ha. Beresford and St Joseph (1979, 271) first suggested that the long ridges of silt were turbaries (of medieval date). On the ground they exist as ridges of silt lying in groups of parallel banks up to 600m in length and about 40m apart (Fig 76). Smaller areas show similar patterns of rectangular cuts lying parallel or at right angles to one another. The silt ridges are clearly artificial from their straight parallel lines; they occur in groups and are made of clean pure yellow silt without any trace of artefacts or other remains. As with the roddons, the original features were channels (cuttings) that became silted up. Subsequent wastage of peat between them has left the silted channel as a ridge, a typical reversal of topographical features that occurs in the fen. Filling of peat cuttings with mineral deposits could only have occurred in the Roman period, when silt was still mobile. In the Middle Ages there were extensive turbaries associated with each village, but, with peat wastage, no trace of them remains on the ground.

Several turbary sites modify adjacent watercourses, the clearest example being that immediately north of the Upwell Fen group where a canal more than 800m long (running between TL 472 952 and TL 480 956) has been integrated into the water system to link the turbaries with the Old Croft River. Other sites show lengths of unnaturally straight, often right-angled, watercourses nearby. It is possible that water transport

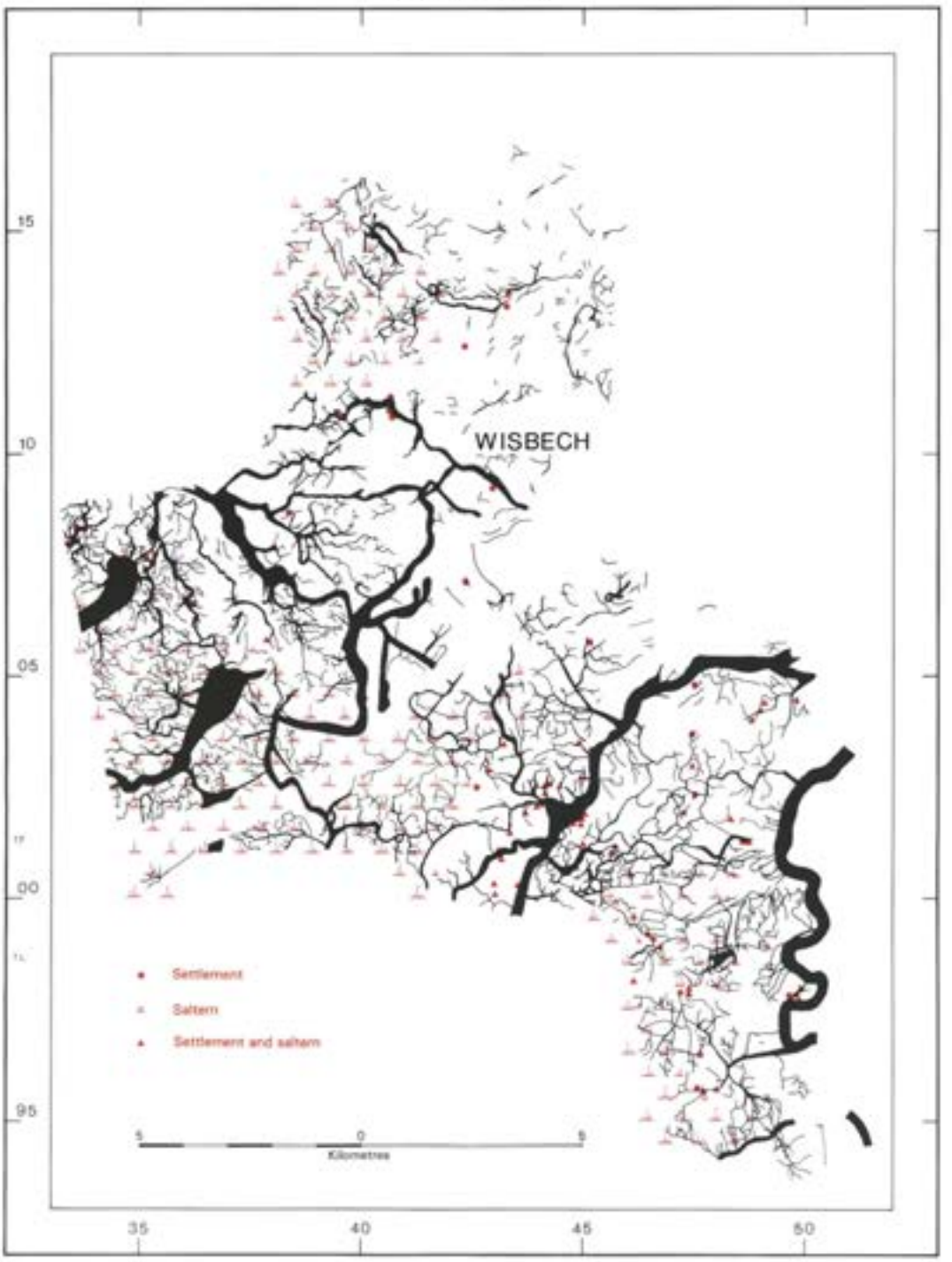



*Fig 74 Cambridgeshire Roman sites and salterns in the silt fen; preferred locations are on roddons at the fen edge (from Hall forthcoming)*

was used to move the large quantity of peat needed for the salterns and for domestic fuel for the many Roman settlements near March. A complete plan of cropmarks and turbaries is given by Hall (forthcoming, figs 95, 96, 102). Measurement of the mapped turbaries indicates a relationship, in some cases, to the *actus*, a unit equivalent to 35.5m used by Roman land surveyors. It appears possible that the Upwell Fen turbaries were originally one and two *actus* wide; at TF 47 00 and TL 46 98 blocks of turbaries were laid out in four *actus* squares.

In Lincolnshire an artificial channel linked to the Morton Canal terminated in a zone of parallel silt ridges about 150m in length, described as 'fields' (Hallam in Phillips 1970, pl IV, IX, 65–6). Their location at the seaward extent of the Roman peat makes a field interpretation unlikely because of waterlogging; they are further examples of turbaries. Bourne, too, has evidence of peat cutting.

In Norfolk there are similar extensive complexes of parallel silt banks (Silvester 1991, 107, pl X). The extent of turbaries is remarkable, with the most dramatic examples standing as 2m-high ridges. Others are more obvious from the air; the turbaries to the south of Poplar Farm were first photographed by O G S Crawford in *c* 1933 (TL 548 991). Further east irregular patterns of turbaries, occurring as much as 3.5km into the fen,

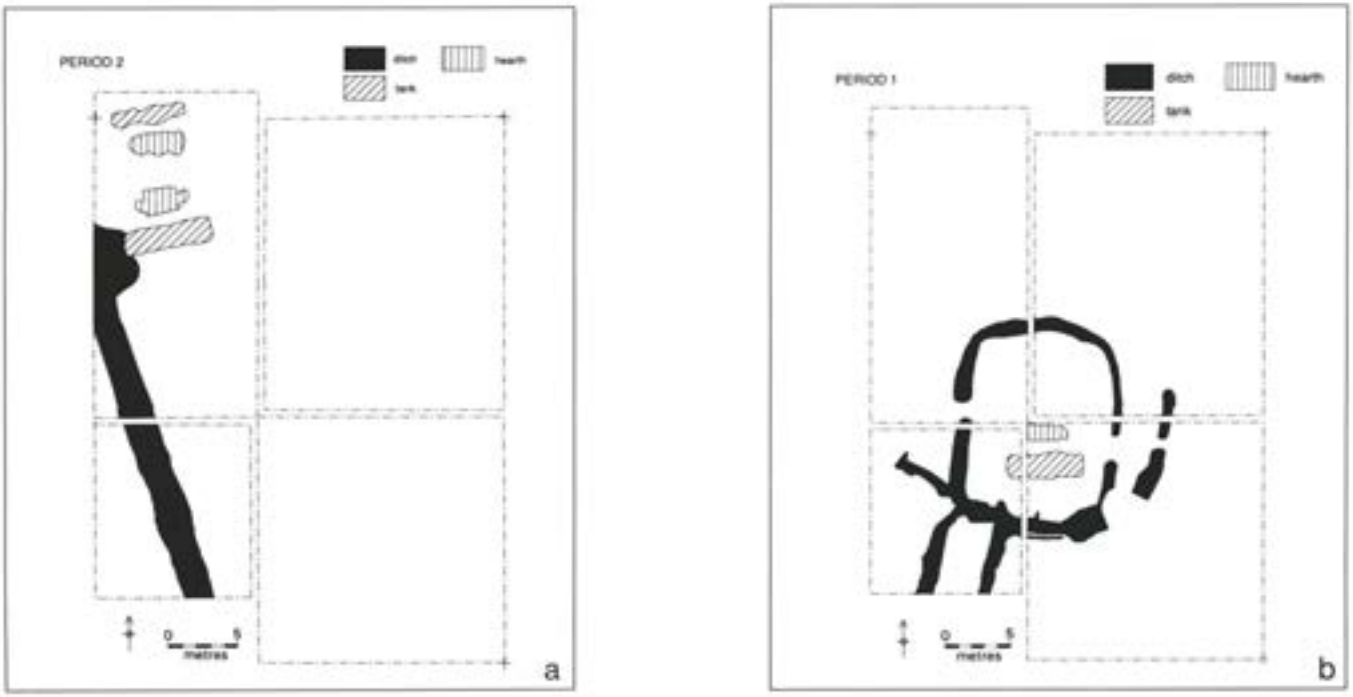



*Fig 75 Plan of Middleton salterns with hearths, settling tanks (pits), and feeder channels; plans a and b represent two different stages at closely adjacent sites (from Leah 1992)*

strike off from former watercourses. The appearance of these straight cuts with angular changes in alignment distinguishes the turbaries from the more sinuous roddons.

## Field systems

The siltlands are well known for their cropmarks, first studied in detail by Hallam (in Phillips 1970, 64–6). A comprehensive computer-aided plot of all the readily available aerial photographic evidence for the Cambridgeshire Fenland has been made (Palmer in Hall forthcoming, figs 67, 95, 96, 102), and Lincolnshire is currently being studied. At Christchurch, in Upwell, near the turbaries, lies a remarkable large block of rectangular ditched fields (illustrated in Phillips 1970, pl VIIIb), at least 85ha in extent (centred on TL 49 97), with axes aligned on the Fen Causeway (east–west) and the Old Croft River (north–south). Like the turbaries, the Christchurch field system reflects a Roman origin by its dimensions, approximately 1200m by 700m and equivalent to a Roman measurement of 34 by 20 *actus*. The *actus* forms the basis of centuriation, which was most commonly laid out using a grid of 20 *actus* (776 yards/710m; Bradford 1957, 145–216).

The Christchurch fields do not fulfil the requirements necessary for their classification as 'centuriation' but may be an example of *limitatio*, a form of less rigid division used in imperial estates (Bowen 1961, 26). There are no finds on the ground within the field system, which accords with a pastoral use.

Traces of fields elsewhere in the silt fen rarely show much adherence to a planned axial design. Many individual fields are square (or rhomboid) rather than rectangular, another indication that they were used for stock rather than arable, which is better suited to rectangular fields (Bowen 1961, 24). Hallam (in Phillips 1970, 64–6) gives some statistics for the sizes known at sites identified before 1970.

Norfolk has extensive localised enclosures based on the Fen Causeway. The system around Straw Hall Farm, Downham West, is one of the most frequently pictured Roman landscapes in Norfolk (Dymond 1985, pl 4; Wade-Martins 1987, pl 26; Silvester 1991, pl XII). Set on silted turbaries and showing as cropmarks from the air, the ditches have a north/south orientation and enclose areas ranging from one hectare to less than one-tenth of a hectare (Silvester 1991, fig 60d). Entrances to individual enclosures can be recognised, and double-ditched tracks lead northwards and edge the main block of enclosures on both west and east.

The fields are most likely to have been used by animals, but environmental evidence is required to determine whether they were under a pastoral regime or whether there was any significant production of crops.

## Fen circles

The silt fen contains many areas where there are cropmarks of circles or 'ring ditches' about 7–17m in diameter; they are defined by very fine annuli representing ditches about 0.5m wide. The ephemeral nature of the circles was noted at their discovery (Riley 1945; 1946) and Wilson has since commented (1978) that many of them have been photographed only once. The minimum total number of individual circles in Cambridgeshire is 703, plus the unknown quantity from Riley's work (Hall and Palmer, in Hall forthcoming). Riley (1945, 153) estimated that there were over 1000 circles.

*Fig 76 Aerial photograph of Upwell (Christchurch) turbaries, TL 477 952; the linear light bands are former channels cut in peat and now filled with silt (photo: Rog Palmer; 93.23/1 (1993))*

In Norfolk, ring ditches associated with Roman settlement are common along the Old Croft River, but on the Fen Causeway circles are usually found away from settlements. Large numbers occur at Neatmoor and a small penannular gully excavated at Denver appears to be part of one (Gurney 1986, fig 85).

Only two groups have been recorded as earthworks, at Wisbech St Mary, Cambridgeshire, and in Hilgay, Norfolk (on pre-Flandrian land), both of Roman date. The Wisbech site was ploughed out in about 1976, but had been photographed commercially as a colour oblique. There was a series of circular ditches with flat central areas; the owner said that no finds were made during ploughing. The Hilgay site is still an earthwork (Fig 71; Silvester 1988b). Many sites have been very thoroughly searched on the ground, but no artefacts or soilmarks of any kind have ever been found. It would seem that the circles are of routine agricultural origin, and it has been suggested that they were drip gullies to drain water from the thatched roofs of hay or corn stacks (Hall 1978).

A post-Roman date for some of the circles has been proposed at Elm where they coincide with medieval strip fields (Wilson 1978). Recent work on air photographs suggests that the circles are of both Roman and post-Roman date, according to their location. The Christchurch block of Roman fields has many groups of circles, some placed in field corners, suggesting a Roman date. There is coincidence of Roman occupation and circles in nine instances, and there are a further three sites which have circles close by. Other evidence is discussed by Hall and Palmer (in Hall forthcoming).

## Conclusions

The results of the Fenland Project survey in the Roman period have given a full context to the Roman occupation of the siltlands, considerably extending the work published by Phillips in 1970. Since that time many more settlements have been discovered (among them the large site at Stonea Grange), as well as the full pattern of the saltern industry and its associated turbaries. The identification of several more canals helps to unravel the communication network in the Roman Fenland.

The Roman fen edge, islands, and siltlands were more densely settled than at any time previously, the silt being utilised for the first time in much of the area. On the Fenland periphery there were large urban sites interspersed with villas, and the whole landscape was infilled with small rural settlements, presumably dependent in some way on the larger sites. Among the rural sites those few still surviving in earthwork form are remarkable, both in their visual appearance – the coming to life of dull cropmark plans – and in the potential they offer for the understanding of the farming economy. All the earthworks are vulnerable and it is imperative to preserve them.

Stukeley suggested that the Fenlands were a Roman imperial estate, and the suggestion has maintained support over the years. One of the criteria is that an imperial estate would have no villas (private estates) within it. The Fenland islands and siltland do not have any villas or large sites except the remarkably rich building at Stonea. On this definition, a Fenland imperial estate is possible, Stonea being the administrative centre for the southern Fenland and probably beyond. Stonea Grange was a building of substance. Apart from its size and expensive building materials, it was located next to the Iron Age ringwork, and the island of Stonea was linked by a canal at the north to the Fen Causéway at Flaggrass, March. Whether private or imperial, the site would most probably have controlled a considerable territory.

It is difficult to be certain about such things as ancient estates, for we begin to move into historical and political matters that do not often leave a physical archaeological record. Whereas some medieval estates of the monastery and bishopric of Ely can be identified in the landscape as a series of manorial sites, often with parks, isolated from their main settlements, it is impossible to identify physically the seventeenth-century estates of the Merchant Venturers and the earl of Bedford. These two bodies were each granted 95,000 acres of Fenland dispersed in large and small blocks in return for capital invested in the reclamation works. The land was let out to local tenants, many of them small, and is unidentifiable on the ground. It may be that the Roman Fenland did belong to private upland villa estates but that it was let out to local farmers, or run by villa employees, who were impoverished and had no capacity and no desire to live in a grand style. That 'fenmen' were content to live in a manner simpler than their upland neighbours is evident in the Iron Age (by the absence of fine, wheel-made, late Iron Age pottery in the Fenlands of Norfolk and Lincolnshire), and was certainly the case in the seventeenth-century Fenland and until very recently.

Saltern activity, well known in Lincolnshire, has now been recognised in the other two siltland counties, being concentrated on the siltland fen edge. Its previous identification in Norfolk has been hindered because much of the Roman land surface is buried by later deposits, so restricting the discovery of cropmarks and artefacts. Aside from the large numbers of sites now identified, the scale of production at some of them was large; Dairy House Farm, Littleport, and Flaggrass at March are particularly notable. The scale of the saltern operation is also indicated by the extensive turbaries alongside the eastern length of the Fen Causeway.

Turbary cropmarks were previously interpreted both as Roman fields and as medieval peat cuttings. They occur on the fenward side of the siltlands, and are most extensive in association with the central part of the Fen Causeway in both Cambridgeshire and Norfolk. The amount of peat removed must have been prodigious, most of it probably being used to fuel salterns.

Communications across the fen between the Midlands and East Anglia, via the Fen Causeway, have long been known. The survey has identifed further canals linking several Fenland rivers. All of them appear to be for transport, and there is no convincing evidence for any Roman drainage. The Lincolnshire Car Dyke remains an enigma; it has a different structure and appearance from other Roman canals and from medieval dikes; if a canal, it runs at various levels and has discontinuities; if a catchwater, it implies a level of water management not otherwise achieved until the seventeenth century.

There is inadequate excavated and environmental evidence for the understanding of the economy of the Roman Fenland. Apart from a few sites at March, the site at Denver, and old small-scale excavations at some of the fen edge villas, there is little information. From the survey results there can be no doubt that the saltern industry was extremely important. Its extent proves that brackish water penetrated all the silt fen, and therefore large-scale cereal production was unlikely. The recent Saxon evidence from Walpole St Andrew (chapter 8) shows, however, that it was possible to grow barley on active roddons. Even so, it is likely that any Roman corn production was on a limited scale, aimed at immediately local consumption, since there seems little purpose in trying to grow crops extensively in a hostile, brackish environment when there were large areas of much more suitable neighbouring upland.

The extensive cropmarks of droves and small enclosures in the silt fen suggest a pastoral economy, even for the large rectangular network of enclosures at Upwell. Away from the silt fen there are enclosures relating to many Roman sites. But on the gravel terraces of the West Water from Over to Cottenham, the whole landscape was utilised and some of the extensive series of enclosures are likely to have been part of a mixed farming economy; cereal production would certainly have been possible.

Limited Fenland excavations have produced quantities of animal bone. At Wimblington the economy was interpreted by the excavator to be based on cattle and sheep raising (Potter 1976, 23–54). This was a very small sample and more data are needed from a larger number of sites. From the medieval evidence it is clear that the pasturing of innumerable flocks and herds of animals was an important activity, and it was likely to be so in earlier periods.

Although there has been much destruction of Roman sites by agriculture, especially in the siltland where ploughs regularly reach a depth of 0.5m, there are still a few preserved sites. The extent of destruction is illustrated by the 'fen circles', where just two out of more than 700 are all that survive. Earthwork farmsteads are especially important, and there are two classes of buried sites: some lie under alluvium near the fen edge where the principal rivers enter the fen basin; others occur in Lincolnshire and Norfolk buried under late marine deposits towards the Wash. These earthwork and buried sites hold what is left of the Roman evidence, and, since some of them are very fragile, urgent action should be taken to preserve or excavate them.

# 8 Continuity and response

The landscape of the Saxon period during its early phase is shown in Figure 77, along with a general distribution of all the Saxon sites known and discovered within the areas of survey. For a few centuries from *c* AD 400 there was little change in watertables or in the extent of the fen. The work described below has proved that the earliest Saxon settlers moved into the Roman Fenland and continued to live along the fen edge and on the high spots of the siltlands in the same kind of locations as their Roman predecessors. In a few cases they continued to occupy Roman settlements. Later, there was an increase in wetness that must have been devastating to the well-established communities, and it is this widespread deterioration that has always led to a belief in inundations by sea and inland waters during the Saxon period. The survey has now demonstrated the more complex nature of the flooding, and its relatively late date.

The Saxon period is here divided into the conventional three phases, early, middle, and late, corresponding approximately to the years AD 400–650, 650–850, and 850–1066. Settlements are phased by the ceramic evidence. Early pottery is hand-made, usually in a dark, hard fabric filled with sand or igneous rock fragments that glisten in sunlight. A small proportion of early vessels have stamped decoration (Fig 78). Pottery of the middle Saxon period on most of the south-western fen edge is similar to that of the early phase, and cannot satisfactorily be distinguished from it; there is a trend towards thinner sherds and decoration is rare.

For the middle Saxon period in East Anglia a distinctive and mass-produced Ipswich-type ware was commonly used from the mid seventh to the ninth century AD, and enables this period to be distinguished from the early Saxon phase. The pottery is wheel-made, with a predominantly grey colour. It is found to the west on the silt fen. In the Lincolnshire region hand-made, shell-gritted Maxey wares are also distinctive of the middle Saxon period. Wheel-made late Saxon pottery, St Neots, Stamford, and Thetford ware, is easily distinguished from that of the previous periods, and occurs ubiquitously. Saxon pottery from the Lincolnshire Fenland has been discussed by Healey (in Hayes and Lane 1992, 249–52).

The evidence for Saxon activity falls into three main classes: settlements identified by ceramics, early cemeteries with grave goods, and the written record. Most of the medieval vills had late Saxon origins, but these data are dealt with in the medieval section, little of the late Saxon historical information being presented here. As with the Roman period, the settlement of the silt fen was rather different from that of the fen edge and islands.

## Siltland settlement

### Lincolnshire

Middle Saxon pottery from the Lincolnshire Fenland was first published over 30 years ago, although at the time it was believed to be of Iron Age date. Hallam 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 excavation of a middle Saxon settlement at Maxey and the recognition there of 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). At the same time further finds of similar material were 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 reassessed Fleet material (Healey 1979, 80–1). All these sites were close to the centres of medieval siltland villages and it was suggested that the seventh-century pottery represented the only firm evidence, other than that of place-names, for the resettlement of the silt fens after the assumed abandonment of the area late in the Roman period.

Settlements of early and middle Saxon date have been found as a result of the recent survey. Many of these, in Lincolnshire, are located away from the centres of the medieval and modern villages and form a dispersed pattern of settlement, lying close to the landward edge of the silts (Fig 79; from Hayes and Lane 1993, 214).

Early Saxon sites are difficult to find, as they are not usually mounded, with a few bones but fair quantities of sherds, though these can be hard to see as they tend to be small and dark. In contrast middle Saxon sites at Pinchbeck, Quadring, and Gosberton lie on low mounds, visible at a distance, which do not appear to have been formed naturally and on which the surface soil is stained black. Large quantities of animal bones and mussel shells are commonly found, but sherds are relatively scarce. Other frequent finds are fragments of quern (lava or millstone), hones, and an occasional spindlewhorl. Pottery of shell-tempered Maxey type and Ipswich-type wares occurs. A site at Quadring has a mound 35m in diameter and over 1m high which, with its dark soil stain, is strikingly obvious from nearby. Sites of early and middle Saxon date were not geographically separated and tend to occur together, forming loose clusters.

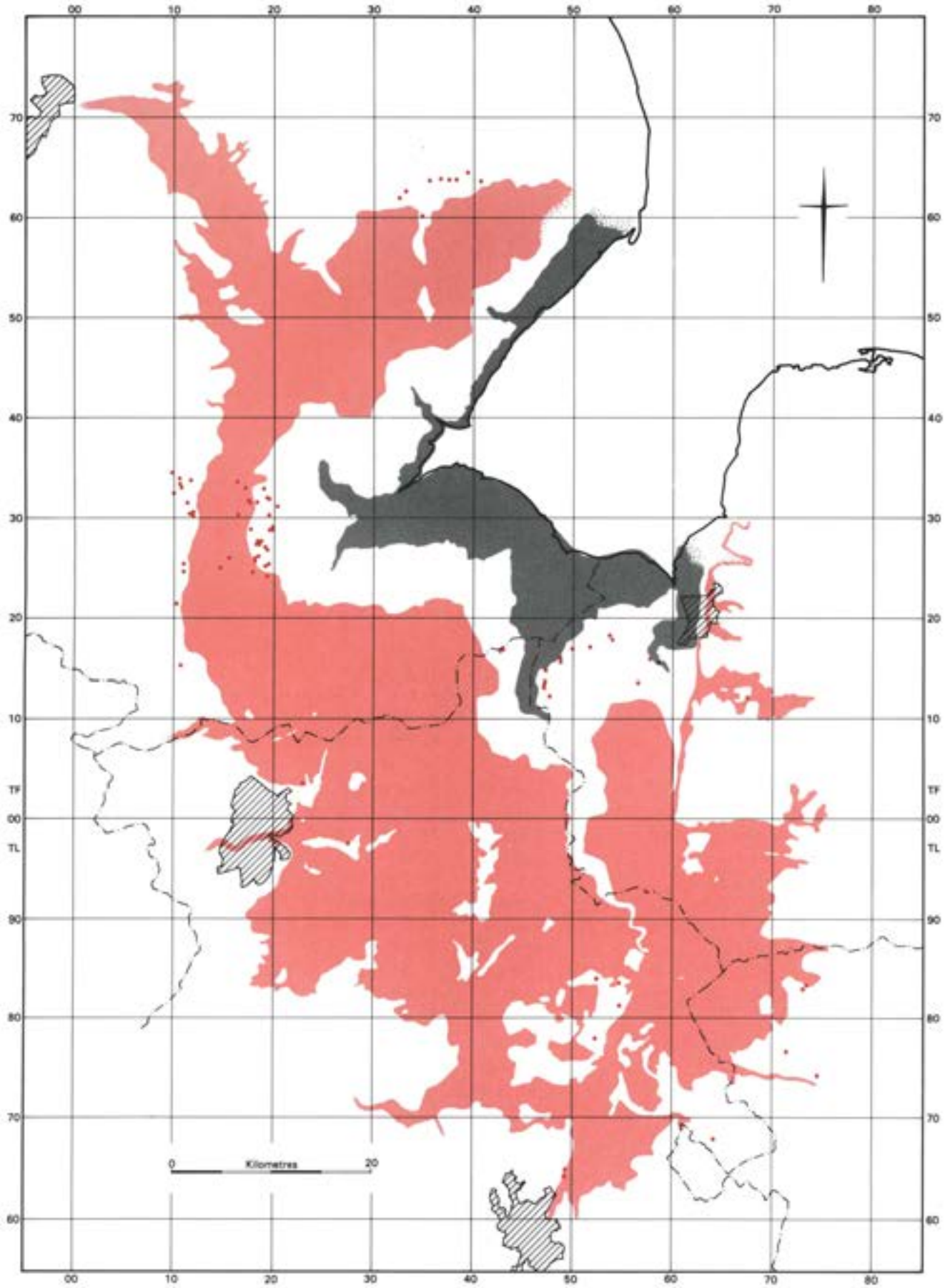



*Fig 77 The Saxon Fenland in c AD 700; the areas of silt (grey stipple), islands, and peat (red stipple) are substantially the same as in the Roman period; later the Fenland became much wetter and many Saxon sites in the fen were drowned*

*Fig 78 Saxon pottery from Cambridge (photo: University Museum of Archaeology and Anthropology, Cambridge)*

Two Roman sites at Pinchbeck and Gosberton continued to be used in the early Saxon period. In all, nine Saxon sites were found in Gosberton; of these all but one contained early Saxon pottery, and six of them had middle Saxon wares as well. The sites were abandoned by the ninth century AD. There is no late Saxon material on the fen sites in Gosberton, and the area was not resettled until after post-medieval drainage.

However, at Low Fen, Quadring, a site lying on the silts of the major roddon represents the most long-lived of the Saxon fen sites so far discovered, where early and middle Saxon components were superseded by a late Saxon phase with finds of Stamford ware. Its late survival compared with that of other sites was due to its location on a high roddon, offering protection from advancing floods. Finds of imported lava quern fragments suggest that the site had some wealth.

Partial excavation of the middle Saxon site at Chopdike Drove, Gosberton, showed a complex of surviving features that had developed in three phases, the last having pits and a rectangular building 14.2×7.6m. Phase two was 'industrial', with ash and burnt clay debris; saltern activity is possible but so far unproven. Finds included a weaving tool, a loomweight, and a bone comb, as well as sherds. The site had a long life and the lower levels were well preserved (Lane and Trimble 1993).

Subsequent settlement of the late Saxon period in the siltland seems to have taken on a nucleated pattern of the kind which had earlier created the villages of the fen edge and uplands.

## Cambridgeshire

The only early activity in the Cambridgeshire silt fen is represented by two bronze Saxon brooches discovered at Wisbech in 1858. These are likely to represent a pagan burial (Phillips 1939). Saxon burial urns were also discovered at the site of Wisbech Museum.

The area of siltland on which so much Saxon material occurs in Lincolnshire and Norfolk is of small extent in Cambridgeshire. Only two middle Saxon sites have been found, lying at 3m OD near the centre of Tydd St Giles (Hall forthcoming). They were both characterised by their location on slightly raised areas, as in Lincolnshire, and yielded large quantities of animal bone as well as dark, hand-made sherds in thick, black and grey fabrics. The rim forms correspond well with other sites of the period in the fen, both in Lincolnshire and Norfolk. There were several sherds of Ipswich-type ware, in a hard grey fabric. Each site produced a finely tooled whetstone with a perforation, presumably for suspension from a belt.

It is likely that all the medieval silt villages were founded well before the Norman Conquest, and the evidence for this from field names and reclamation sequences is outlined below. From historical sources Elm is recorded in 973, Wisbech in 1013, and the neighbouring Norfolk parishes of Walsoken and Walpole in 974 and 1050 (Hart 1966).

## Norfolk

Early Saxon sites in Marshland are sparse; some of the land surface may be buried by later silts, as in the Roman period. One confirmed site lies on the silted

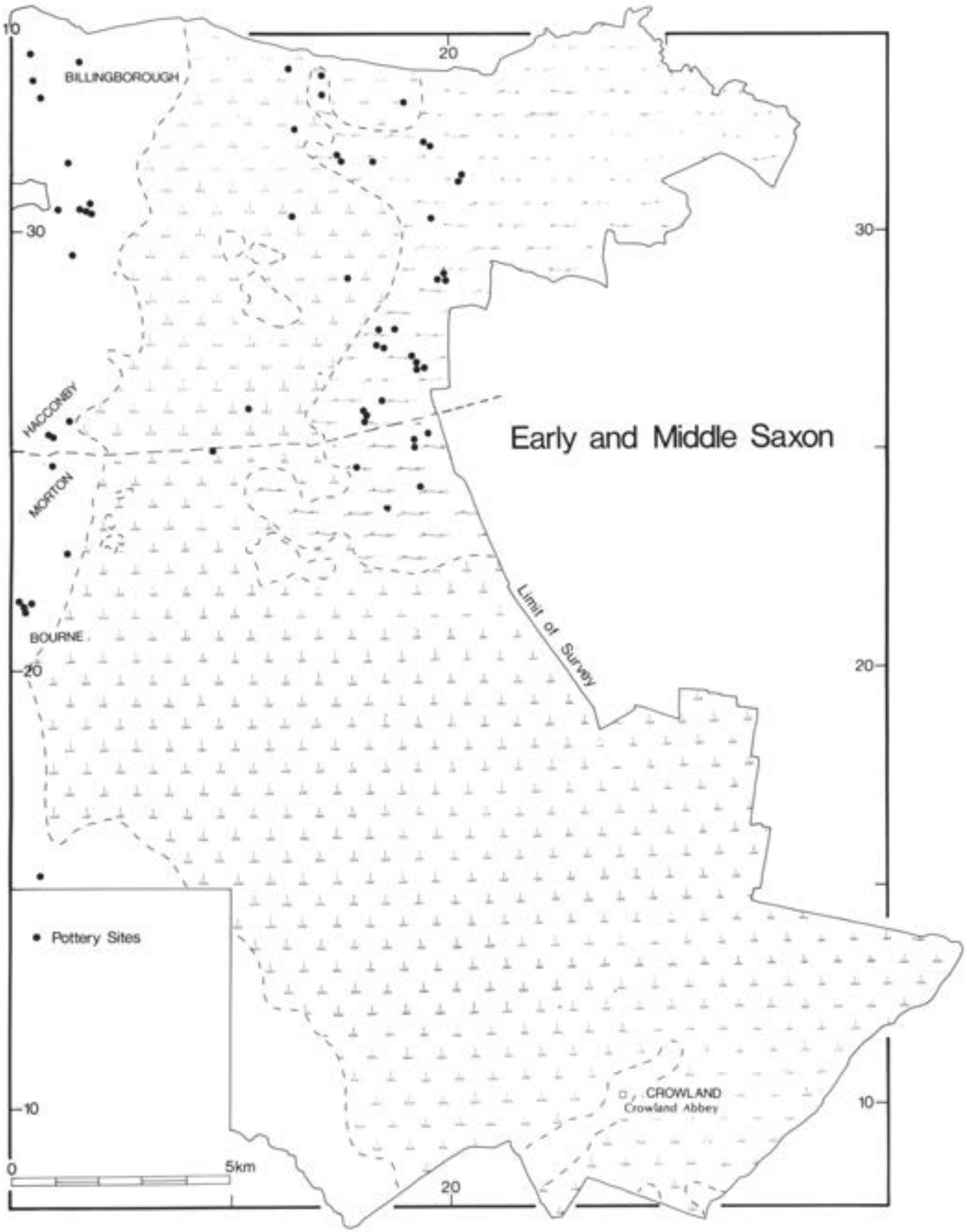



*Fig 79 Early and middle Saxon settlement in the western Lincolnshire fen; all the sites lying in the fen and some of those on the fen edge are new discoveries*

ridge of the Aylmer Hall canal in Tilney. It is, however, an isolated small area, placed on a ridge projecting above freshwater marsh or swamp. Recent sample excavation was unable to find any features of early Saxon date and there was only a small quantity of pottery (Leah 1993). Two of the middle Saxon sites (West Walton and Walpole St Andrew) have each produced two sherds of possible early Saxon date.

Middle Saxon settlement in Marshland is typified by two sites at Walpole St Peter. Both show on the ground as extensive scatters of Ipswich-type ware and animal bone set in slightly grey silt, on and around low roddon systems. One site yielded the first *sceatta* (a middle Saxon bronze coin of probable eighth-century date) to be found in Marshland.

The regional settlement pattern in Norfolk shows that there are seven certain and two possible sites, spread in an arc across Marshland (Silvester 1988a, 156–8). In western Marshland these sites lie on roddon ridges at West Walton and Walpole St Peter, projecting up to 2m above the general level of the high siltland. Six of the sites are spaced regularly between West Walton and Terrington St Clement, between 1.5 and 2km apart, suggesting that the distribution was ordered, allowing for the irregular location of roddons (Fig 77). The large site at Hay Green, Terrington St Clement, was already known (Rogerson and Silvester 1986, 320); more detailed collection revealed over 1000 Ipswich-type ware sherds from 13 adjacent fields spreading for 1.5km and with an area of *c* 7ha. There were four decorated sherds, as well as the usual quantities of bone, and two loomweight fragments, forming one of the largest middle Saxon sites in Norfolk outside the major urban centres (Rogerson and Silvester 1986; Silvester 1988a, 37).

Further east the pattern breaks down, there being insufficient evidence from Clenchwarton and Terrington St Clement to establish whether middle Saxon occupation occurred on the roddons beneath the village centres. Thus, instead of settlements lying relatively close to the Saxon shoreline, the only traces of activity are a Tilney St Lawrence site set on a low roddon and yielding little pottery, and the riparian settlements at Tilney Salgate and Wiggenhall Eau Brink. The Ouse followed the Eau Brink loop to the sea, and these last two sites, located on opposite banks, perhaps related to a ferry or ford. Lamb (1981, 58) suggested that in the earlier eighth century there was climatic change to drier and probably warmer summers and colder winters. Such a change could have encouraged pioneering settlement on the silts, but any subsequent rise in sea level relative to the land in this area would have necessitated the creation of flood defences in later centuries.

Middle Saxon sites have large quantities of bone fragments, as paralleled in Lincolnshire, suggesting permanent residence rather than temporary occupation. They may, however, have originated as temporary accommodation for those overseeing summer pasturing of stock on the saltmarshes and the drier inland areas. The regular spacing could indicate a degree of locational control, perhaps exercised by the upland estates that were exploiting siltland resources. Subsequently, summer use gave way to permanent occupation on roddons that were not subject to major flood risks during the winter. The quantity of bone might reflect some element of autumnal slaughtering although, with the emphasis on stock rearing, meat probably formed a major part of the Saxon diet.

Limited excavation at three of these middle Saxon sites was done in 1992 by Leah (1992, 52–6). They were at Hay Green, Terrington St Clement (the largest), Walpole St Andrew, and West Walton. All lay on roddons and had many pits and buried ditches that were probably concerned with control of stock and water. The ditch silts at Walpole showed that the site was open to the sea, being exposed to fast-moving tidal water and flooded daily (Murphy 1992, 38). The West Walton site was less subject to tidal influences and yielded remains of barley and oats, which are more salt-tolerant than wheat. Crop production would only have been sucessful on the high roddons.

Some of the pits on these sites had fills of domestic rubbish and much animal bone with butchery marks. It is possible that there was on-site slaughter of animals. Other pits were vertical-sided and would have needed wooden shuttering, as though they were settling tanks for salterns. However, no saltern activity was proved in the limited area of the sites investigated although, if meat was prepared on the sites, salt would have been necessary for its transport. No structures were discovered of either middle or late Saxon date, but the deep modern ploughing that has occurred would have removed all traces of flimsy wooden or cob-walled buildings. Little metalwork was found, in contrast to upland Norfolk middle Saxon settlements, which implies that the fen sites were less well-supplied with such goods, perhaps a reflection of their status.

In the late Saxon period there was polarisation of settlement, with expanding centres at West Walton, Walpole St Peter, Terrington St Clement, and Tilney All Saints. In at least two places, Walton and Walpole, late Saxon villages emerged on middle Saxon sites. Together with Terrington St Clement, where the settlement origins are not known, these centres lie on the most prominent roddon ridges on the high silts of Marshland, implying that the local topography was an important determinant of later settlement (Silvester 1988a, 158–60).

Middle Saxon sites on less imposing roddons did not continue; a large middle Saxon site at Walpole St Peter reappeared as a hamlet around a small green in the Middle Ages, but there is no later Saxon material. At the large Hay Green site only 60 sherds of late Saxon pottery were recovered. Several other middle Saxon settlements faded away.

By the end of the Saxon period, four of the seven medieval Marshland villages were recognisable vills, according to the archaeological evidence, and the remaining three are too built up to provide evidence. The settlements were probably small prior to the Norman Conquest; the extent of the spreads of

Thetford-type ware and other ceramics is limited compared with contemporary upland sites. There was careful selection of settlement locations but, even allowing for the roddon-top occupation which tends to be linear rather than agglomerated, the total area of settlement debris for Tilney All Saints, where evidence is probably the most complete, is less than 2ha. It is made up of five groups of material dominated by Thetford-type ware and datable to the eleventh or even the tenth century. These groups are all set on sandy-silt levees of natural watercourses that were probably still active.

The embryonic villages took in surrounding land for farming in a piecemeal manner, and the pattern of small fields around Walton, Walpole, Terrington, and perhaps Clenchwarton almost certainly belongs to the pre-Conquest period. The same pattern of small fields next to the late Saxon and medieval vills occurs in Lincolnshire and Cambridgeshire.

In Marshland, the place-name group of Walpole, Walsoken, and Walton, first recorded in the tenth and eleventh centuries, could incorporate the Anglo-Saxon element *weall* or wall. It was at one time assumed that the names were taken from the Sea Bank or wall, although the normal Fenland term for a sea bank was *dic* (Reaney 1943, 206–7). A more likely explanantion of the name-forms, in view of the Roman activity in the area, is from the Anglo-Saxon *w(e)alh* meaning a 'Briton' or 'Welshman'.

## The Sea Bank

Around the whole of the Wash there was a protective earthen barrier called the Sea Bank, built to prevent flooding by the sea. There were also extensions of the bank along the tidal parts of the major rivers at the Old Croft in Elm and the Ouse in Marshland. Antiquarians of the seventeenth century referred to the Sea Bank as a Roman structure, but the term 'Roman Bank' was not recorded before then (Reaney 1943, 106–7) and there is no evidence of its Roman origin.

The middle Saxon site at Tilney St Lawrence was set on a low levee beside the river Ouse, and it seems that the Sea Bank beside the river covered part of the occupation and is therefore of later date. Where the bank at Tilney has been lowered and cultivated there are sherds of middle Saxon pottery, disturbed from the site when the bank was thrown up. Middle Saxon sites at Walpole St Peter have occupation debris running up to the Sea Bank and may continue beneath it (Silvester 1988a,76).

*Fig 80 The Sea Bank at Leverington, where it is best preserved; seen here in its latest medieval form, the Bank was first made in the eighth or ninth centuries (photo: D N Hall)*

The proximity of the earliest silt villages to the Sea Bank suggests that it was in existence by the late Saxon period, to protect the fields. The first record of the name is in 1178 when it was already deemed to be 'old' (Skertchly 1877, 13).

The recent excavations at Terrington St Clement and West Walton, Norfolk, where there was late Saxon and early medieval activity from the ninth century and later, showed conclusively that the Sea Bank was in existence. Pits and ditches were filled with domestic refuse only and there was no accumulation of high energy tidal silts, as found with the middle Saxon phase of the sites (Leah 1992; Murphy 1992). There must have been protection by the Sea Bank to stop the tidal deposits so effectively. A partial section of the Bank at Clenchwarton showed that it had been built directly on mudflats, with no development of topsoil (Leah and Crowson forthcoming). This would be expected if the Bank was built in marginal conditions with a rising sea level threatening habitation.

The Sea Bank is a major flood defence for the settlement and agriculture of the whole siltland. It relates to other major fen banks, to river embankments, and to river diversions, which are all likely to be late Saxon works. When the Sea Bank was needed, there would have to be banks against the fen as well, for the fen watertable would rise with the sea. Having undertaken such large-scale flood defence works it became desirable to rationalise and divert the channels of the sluggish brooks and rivers flowing in roddons along their prehistoric courses. The whole of the earliest stage of the siltland landscape became established; the core of vills, the small irregular fields, and the inner fenbanks shown on the 'medieval' plans (Figs 91, 92) almost certainly have a late Saxon origin.

The effectiveness of and necessity for the Sea Bank are clear at Walpole St Andrew, Norfolk, and Leverington, near Wisbech, where the silt on the seaward side of the earthwork is 2m higher than the level of the protected agricultural land. The Bank was increased in size over the years as required. Fowler inspected a new cut through the Cambridgeshire Sea Bank in Leverington and noted that the earliest phase was only 3ft high and had been made up subsequently by three separate additions (Fowler 1950, 12). Figure 80 shows the Sea Bank at Leverington.

## Settlement on the fen edge and islands

### Lincolnshire

In the north, Saxon settlements identified by the survey complement information already known from the cemetery at West Keal. This was in use before AD 500, and

the pottery has possible Anglian or Anglo-Frisian connections (Thompson 1956, 196). Of the eight newly discovered sites four continue from the Roman period.

A large site at Stickford is perhaps the most significant. It spans the periods between Roman and medieval, and was a frontier settlement on the southern periphery of the kingdom of Lindsey, occupying a strategic position that could control movements along the Stickney ridge, the main access to the Fenland. Among the middle Saxon pottery were sherds of both Maxey- and Ipswich-type wares, with lava querns of continental origin. With the exception of the large Stickford site, all the fen-side sites were later abandoned in favour of the sandy soils of the upland, probably because of the deteriorating conditions (Lane 1993).

Roman sites in the fen at Billingborough and Hacconby continued to be occupied into the Saxon period. The same occurred at Bourne, where three sites were also newly founded. Early Saxon settlements in the north-west lie west of the fen margin, on the dip-slope of the Jurassic limestone ridge. This is a change of settlement pattern in the area which, from the Iron Age, had been concentrated on the fen margin gravels and the fen itself.

Sempringham Priory at Pointon produced early Saxon stamped sherds and part of a brooch, and an early Saxon sherd came from Pointon, east of the church. Two early Saxon settlement sites were found in Hacconby, well away from the fen. The Dowsby Hoe Hills area contains a group of early Saxon sites continuing across the parish boundary into Pointon and Sempringham. It is uncertain, because of their proximity to earlier barrows and the presence of some decorated sherds, whether these sites represent settlements or a cemetery. The area close to the village contained a probable early Saxon site (Hayes and Lane 1992, 215).

Many early Saxon settlements lie near streams which flow into the fen. At Morton, Bourne, and Thurlby, nine sites flank streams and lie within 1km west of the Car Dyke. A major early Saxon settlement covering at least 2.2ha was found near the crossing of the River Glen at Kate's Bridge, Thurlby. Over 200 sherds were collected, some clustered in discrete groups; few of them were decorated. The site, with its animal bones, burnt stone fragments, and clay spindlewhorl, may have controlled the crossing point of the nearby Glen. Close to King Street, little more than 1km to the south in Baston, is an Anglo-Saxon cemetery whose dates range from the mid fifth to the late sixth centuries AD (Mayes and Dean 1976, 6).

Most of the medieval vills were in existence by the late Saxon period. North of Pointon church sherds of middle Saxon (Maxey-type) and late Saxon material occur. The place-name Billingborough may take its name from *Billingas* (Ekwall 1960, 43) or from the *Bilmigas* referred to in the tribal hidage of *c* AD 700 (Courtney 1981; Hayes 1988, 325). It may be that Billinghay, on the edge of the Witham Fens some 20km north of Billingborough, means an 'island or stream of the Billingas', and that all the region between these two places was the territory of a Saxon tribe called the *Bilmigas*.

The name Rippingale is of Saxon origin, and is surrounded by Scandinavian '-by' name-forms (Dunsby, Hacconby, Kirkby, Dowsby, Aslackby). Ekwall (1960, 388) gives a reference to the Hrepingas in AD 675. 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.

## Cambridgeshire

Early Saxon activity was found at the large Roman site at Stonea Grange, where there was occupation debris and postholes and slots representing buildings (Potter and Jackson forthcoming) and paralleling the discoveries of early Saxon material at most large Roman sites in upland Cambridgeshire, Northamptonshire, and elsewhere in the East Midlands.

Ely has one site with Roman and Saxon sherds, providing a link between the two periods. A similar, but probably more important, site lies just south of the modern parish, in Little Thetford, next to Bedwell Hay Farm. It may be the *Cratendun* mentioned in the early chronicles as the traditional site where Ethelrede had a church, before founding the monastic site at Ely a mile away (Blake 1962, 2–5). The Bedwell Hay settlement lies on the top of a low, sand-capped hill and yields Roman and early Saxon sherds. The topography fits well the dun ('hill') element of the old name (Hall forthcoming).

Early and middle Saxon sites in the Cambridgeshire Fenland are few. Most sites occur in the traditional locations for Saxon settlement, the river and fen gravels. There are many sites known on the Welland Valley terraces (Hall and Martin 1980) and Saxon sherds were discovered on the upland at Sawtry Judith, a deserted village site (Brown and Taylor 1980, 115–17). Further south, at Abbots Ripton, away from the fen, there is a scatter of early Saxon sherds on a patch of glacial gravel.

A few middle and late Saxon finds were made during an excavation of Linton Hall, Haddenham (Le Patourel 1970). No other occupation sites have been found on the southern fen islands, because the modern villages are located on small pockets of sand lying on the highest points of peninsulas, so obscuring the soils most preferred by settlers of the early prehistoric and Saxon periods.

Two Saxon sites on the Cam gravel terrace at Waterbeach produced the usual sherds of hard, black pottery, a few burnt pebbles, and some domestic bone. Where pottery occurred it was in fair quantity and the observable subsites may represent *grubenhaus*-type structures. There was also a fine piece of metalwork of gilt bronze with a zoomorphic decoration. It probably came from a casket rather than a brooch.

A *Grubenhaus* was excavated on the edge of the Car Dyke at Waterbeach by Lethbridge (1927). There was a

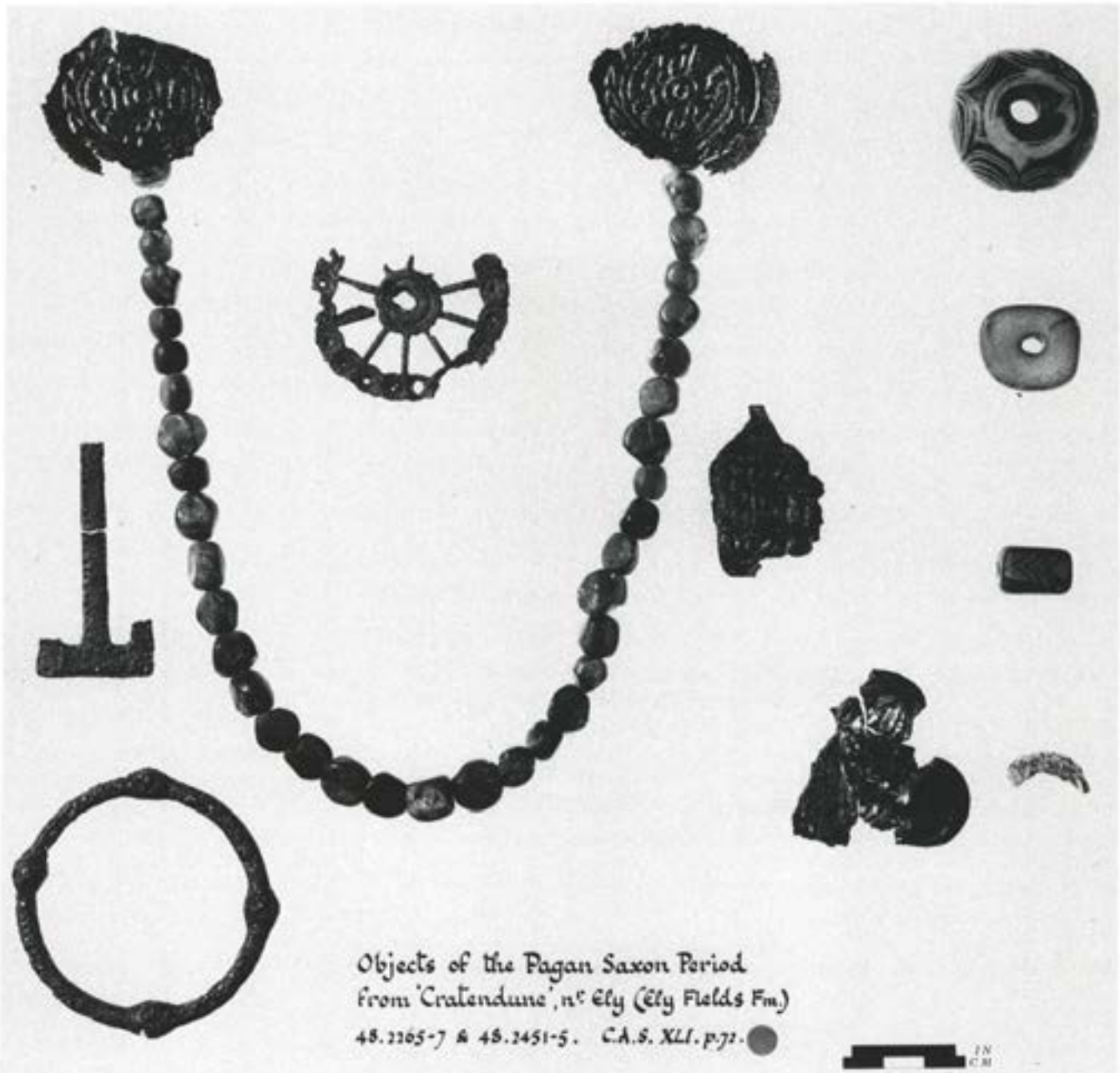



*Fig 81 Saxon metalwork from a cemetery south of Ely, possibly associated with the site of 'Cratendune' (photo: University Museum of Archaeology and Anthropology, Cambridge)*

sunken floor level 0.6m below the outside ground surface, covered by a black fill in which there was the skeleton of a dog and many plain, gritty, hand-made pottery sherds. Four decorated sherds were found similar to types used as cinerary urns. These Waterbeach sites are all outside the fen proper.

Saxon material was found at Snailwell in the village area. As well as Iron Age remains, there are thick, sandy, hard, hand-made sherds of early Saxon date, middle Saxon Ipswich wares, late Saxon Thetford fabrics, and many medieval sherds. Sites of all periods at Snailwell lie close to the source of the river on which the vill was later centred, bringing out the importance of water in the otherwise dry landscape of the southern chalk slopes.

Late Saxon settlement can be identified from sherds adjacent to all the medieval vills. Excavation evidence came from Ely, east of the cathedral, where there were late Saxon ditches. The filling of domestic refuse suggests that the ditches represent the boundaries of urban property, once part of Ely, before the monastery expanded over it (Holton-Krayenbuhl 1988).

Fen edge cemeteries occur mainly in Cambridgeshire, although we have noted the early Saxon burials in Lincolnshire at West Keal and Baston. In western Cambridgeshire cemeteries were found at Eye and Whittlesey (Hall 1987, 35, 59), and, in the Isle of Ely, at Little Downham, Ely, Soham, and Haddenham.

At Little Downham parts of a Saxon inhumation cemetery and material were found in *c* 1885 and 1934 (Phillips 1939). Two Saxon cemeteries are known in Ely parish. Levelling of Witchford aerodrome in 1947 revealed about 30 inhumation graves, some with grave goods. There were iron and bronze buckles, an iron

sword, amber beads, various brooches, and two fragmentary spearheads (Fig 81; Fowler 1948), dated to the fifth to seventh century. A pendant made of crystal, gold, coloured glass, and precious stones, dated to the eighth century, was revealed by ploughing nearby in 1952. It had Christian motifs and probably belonged to a royal person. This cemetery is close to the Little Thetford Saxon site. On the north of the city, housing estate works in 1959 exposed another inhumation cemetery. The site is unusual because it coincides with the cropmarks of three sides of a rectilinear enclosure, which may have defined the cemetery (Bushnell and Cra'ster 1959). Saxon objects and a skeleton came from Sutton (Albert 1849; Salzman 1938, 316fn), and recently, at Haddenham, skeletons and sixth-century grave goods were discovered in the vill (Robinson and Duhig 1990).

Several early Saxon cemeteries are known from Soham. At the modern cemetery finds of brooches and other items were recorded in 1856–73 and later (Fox 1923, 263; Meaney 1964, 69). Early Saxon finds have also been made within the parish churchyard (Salzman 1938, 316; Meaney 1964, 69; O'Reilly 1934, 89, pl 22). Yet another cemetery was excavated in 1933 (Meaney 1964, 69–70) when 23 inhumations and two cremations were discovered. All the burials were laid within a circle, not radially orientated but suggesting that they had been placed around a barrow. One burial had a whetstone and another was covered with charcoal; dates of mid sixth to seventh century were assigned to two of the graves. At Snailwell Saxon burials have been found with weapons and silver rings. Leaf found a spearhead in his excavation of a nearby barrow in 1939 (Meaney 1964, 63).

The cemeteries do not prove that there was settlement at their locations but, in the absence of sites being found in the fields around the villages, it is likely that the settlement locations have been built over.

Various pieces of late metalwork have been recorded. Five Viking swords and spears were found in the river at Stanground in 1825 and subsequently; they are not well provenanced (Salzman 1938, 326–7). A tenth–eleventh-century spearhead with inlaid silver decoration was discovered as a chance find near Ely, from the river (Lethbridge and O'Reilly 1928); another spearhead of tenth–eleventh-century date was found 'near Ely' (Salzman 1938, 324). A Saxon spearhead and a late Viking spear were found during dredging of the Cam near Dimmock's Cote (O'Reilly 1928). From the name-form this site would be expected to be a Saxon settlement, controlling the fording point of the Cam, a successor to the nearby Roman site.

### Suffolk and Norfolk

Two Saxon settlement sites are known at Lakenheath; one, lying near the Eriswell boundary, yielded a stamp made from a red deer antler and used to decorate pottery (Briscoe 1979). Cemeteries with cremations, inhumations, and grave goods have been found at both Lakenheath and Mildenhall (Briscoe 1949; Meaney 1964). Various finds of brooches and late coins occur.

There was very little early Saxon settlement on the southern Norfolk fen edge. A fifth-century sword came from the Little Oulsham villa, Feltwell, and a brooch was found with Saxon sherds at another Feltwell site (Silvester 1988a, 38). Early Saxon sherds, one of them decorated, were found at Southery, and brooches and other finds likely to derive from an early cemetery have been found near Hilgay church.

Along the Nar Valley there was more activity; early sherds occurred at a large Roman site at Pentney and early Saxon burials have come from gravel workings at Tottenhill. Middle Saxon material was found with Ipswich wares and Saxo-Norman sherds near the churches of Pentney and Shouldham St Margaret's (Silvester 1988a, 131, 134).

The apparent sparsity of material continues in the middle Saxon and later periods. Research in other parts of Norfolk has demonstrated continuity between middle Saxon occupation and later medieval villages (Wade-Martins 1980; Silvester 1988a, 158). Methwold produced a little Ipswich ware near its eastern end, and at Southery, middle Saxon material was found at the village centre, where there was a nucleus on the slopes above the fen. These two villages therefore have middle Saxon origins and the same is likely to be true for other places. A single scatter of Ipswich-type ware at Methwold stands on a peninsula of dryland edged by fen, away from the later vill, and might be a parallel to Marshland as a pioneering occupation and exploitation of resources on the margin (Silvester 1988a, 158).

Late Saxon settlement, distinguished by Thetford and St Neots wares, has been recovered from the Norfolk villages. Documentary records confirm settlement, and Southery has the earliest surviving charters for the county. King Edmund granted a substantial area in Southery to Theodred, bishop of London in 942 (Hart 1966, 96), and some years later in his will Theodred left part of the land, together with the fishing rights that belonged to it, to the community at St Paul's church, London. The remainder seems to have passed to the Abbey of Bury St Edmunds.

## The significance of the Saxon evidence

Away from the Fenland, in the East Midlands and elsewhere, research into the Saxon period over the last 30 years has shown that domestic use of the large Roman sites continued for a time. There was also a widespread dispersed settlement in regions of light soil, especially on river gravels. This settlement pattern continued until the middle Saxon period when there was relocation or 'nucleation' to form the present vill sites, leaving many of the early sites deserted. The Fenland evidence confirms that the same process took place in

the wetlands. The existence of so much Saxon settlement on the siltlands had been previously unknown, and the site locations demonstrate that immediately after the Roman period the fens were still relatively dry. As with the remainder of England, the exact fate of the Roman population is something of a mystery. Such matters can only be resolved by the study of blood groups and genetic protein preserved in skeletal remains from cemeteries.

The Lincolnshire western peat fen 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 the physical barrier formed by the band of freshwater peat fen which separated the rising ground of the Jurassic ridge from the siltland 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.

Spalding has been identified as a key area in the understanding of the south Lincolnshire Fenland. It was sited on the common estuary of the prehistoric course of the rivers Glen and Welland, where silts accreting in the estuary would have provided a suitable and strategic settlement area from the Roman period and possibly before. The general mounding of sites in the middle Saxon period, as found in the silt fen sites, is largely unprecedented; they may have been 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).

The distribution pattern of the Lincolnshire siltland Saxon sites, especially their absence in the west, suggests that freshwater fen had advanced across 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. The abandonment of the scattered early Saxon farmsteads on the fen margin was possibly connected with conquest by the kingdom of Mercia soon after AD 600 (Hayes 1988, 323–5). Movement of the entire population into villages could be an expression of authority or a consequence of change to a communal farming practice. The nucleation of settlement seems to be the best explanation for the absence of middle Saxon sites on the fen margin and uplands.

The other counties do not have such comprehensive evidence as Lincolnshire in the areas available for study, but the same trends are clear, with the silt fen becoming wetter and the fen edge sites being abandoned as part of a nucleation process. The new evidence shows that the Saxon Fenland was, for several centuries, in much the same state as during the Roman period; the extensive and legendary wetness so vividly recorded by twelfth-century monastic chroniclers was then relatively new. Building of the Sea Bank in the ninth or tenth century represents the widespread realisation that conditions were getting wetter, and in the fen many Saxon sites were abandoned, drowned by rising waters and not to be seen again for seven or eight centuries.

# 9 Defence, communication, and reclamation

The period under discussion in this chapter runs from the Norman Conquest in 1066 and concludes in 1500, although brief mention will be made of a few monuments of later date.

The medieval Fenland was fully exploited. There were numerous villages on the siltlands, on the southern fen islands, and along the fen edge where resources could be used to advantage. The wetland area consisted of peat; there were no active marine phases within the Fenland because of large-scale flood protection around the Wash. This enabled the siltlands, first extensively utilised in the Roman period and precariously settled by the Saxons, to be fully developed.

The Fenland had the large urban centres of Lincoln, Peterborough, and Cambridge on or near its fringes. They probably continued as centres of regional importance from the Roman period, Lincoln and Cambridge being sited on Roman towns and Peterborough the successor of the nearby Roman town of *Durobrivae*. The cathedral at Lincoln and the major Saxon monasteries at Ely and Peterborough had an influence on the medieval organisation of the area. Ely was the dominant centre in the south, being elevated to the status of a cathedral city in 1109; it owned almost the whole of the Cambridgeshire Fenland and many estates beyond.

The siltland ports of Boston, Spalding, Wisbech, and King's Lynn were the other larger settlements, and there were further significant local centres at the Saxon monasteries of Crowland, Thorney, and Ramsey. These monasteries never developed an urban status, although Ramsey had considerable possessions.

As with the Roman and Saxon periods, the silt fen is a distinctive area, very different in character from the fen edge or the islands of the south, and will be discussed separately.

The structure and nature of the medieval Fenland are well known from historical records, from the surviving villages that were nearly all in existence by 1300, and from early post-medieval maps. This account, while describing the broad outlines, is primarily confined to reporting and interpreting the many discoveries made during the survey. These included settlement remains lying near existing vills and deserted sites out in the fen that represent small settlements, fisheries, and salt pans. Known monastic sites were visited and their condition noted; in some cases there are still substantial, unprotected earthwork monuments, some of which have been recommended for scheduling. Field systems and their flood defences, especially those of the silt fen, were studied using the techniques of historical geography. A significant achievement has been the mapping at 1:10,000 scale of the medieval landscape: the settlements, the fields, and the extent of the fen. For Cambridgeshire this is complete (Fig 82, which omits field details but shows the fen, islands, and waterways accurately).

Medieval cultural remains of potsherds, briquetage, etc were collected for dating and further study. Some architectural remains were recorded, although architectural studies were generally outside the scope of the survey. Published historical documents and a few manuscript sources were used to identify the nature of the newly discovered sites, and to date early reclamation drains and banks.

## The fen edge and islands

### Rural settlements

The villages of the fen edge were in many respects little different from those of the upland regions, apart from access to Fenland resources. Their formation in the late Saxon period by nucleation of dispersed settlements has already been mentioned. By the time of the Domesday Survey of 1086 the traditional pattern of nucleated villages with surrounding subdivided fields emerges clearly in the southern Fenland, but there were significant exceptions in the north. Most of the Lincolnshire parishes studied have one or more settlements in close association, some with the status of separate townships. East and West Keal both existed in 1086, and the deserted settlement of Laythorpe was in West Keal (Lane 1993). However, it is in the north-western fen edge that paired relationships become clear (Hayes and Lane 1992):

> Billingborough contains shrunken Birthorpe that was once independent, and the deserted vill of Ouseby.
> Pointon has shrunken Millthorpe and the deserted site of Sempringham.
> Dowsby has parts of East and West Graby, deserted and shrunken respectively.
> Rippingale contains the deserted vill of Ringstone.
> Hacconby and Stainfield form a single parish.
> Morton has Hanthorpe on the upland; the enclosure map suggests that there were two townships (Hayes and Lane 1992, 129).
> Bourne has enveloped Austerby.
> Thurlby contains the vill of Northorpe as well as shrunken Obthorpe.

Often the lesser vill has a name with a Scandinavian element (notably *-by* or *-thorpe*). Such pairing occurs widely in the counties of Lincoln and Nottingham; it is interpreted as representing Norse settlement of the tenth century.

Only a few vills in the south have more than one centre. Wood Walton on the south-western fen edge has three separate parts with an isolated church lying midway between two of them. The principal vill lies to the

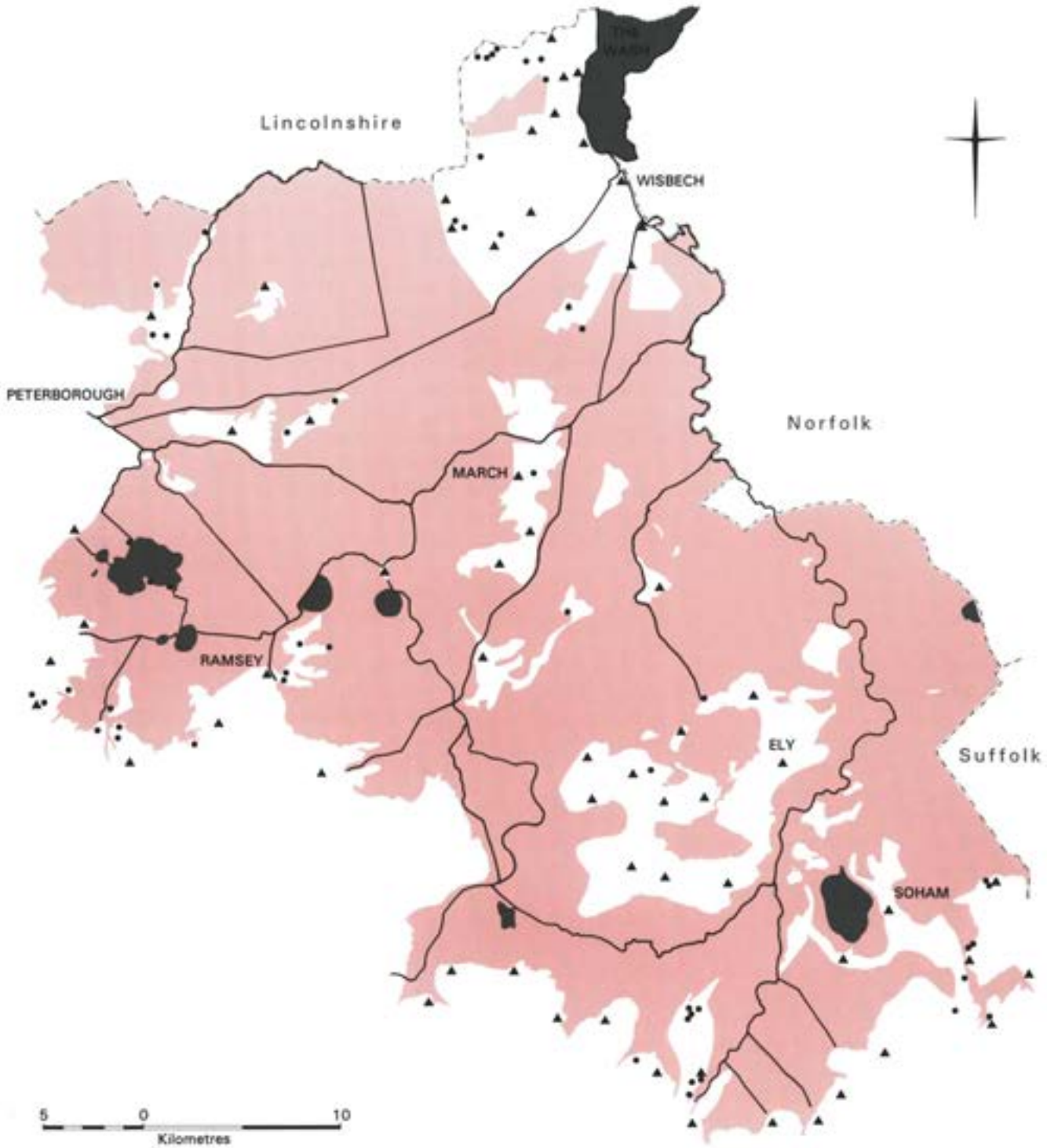



*Fig 82 The Cambridgeshire Fenland in c AD 1200 with rivers and canals (lodes) linking the fen edge and most of the islands; peat is marked as red stipple and meres as grey stipple; major settlements are triangles, minor settlements are circles*

south, on upland. The shrunken Church End on the fen edge is dominated by the mound of a castle built in about 1144. A third settlement is Higney, a grange of Ramsey Abbey in 1134, lying on a promontory into the fen (Hart and Lyons 1884, 155, 159). Sawtry is also complicated, with two settlement sites and the three parishes of All Saints, St Andrews, and Sawtry Judith (Page *et al* 1936, 203). The first two parishes formed one vill, each based on a manor. Sawtry Judith parish was based on a separate vill and had within it Sawtry Abbey, founded in 1147.

The fen islands of the south offered limited areas for settlement and there are no deserted sites. Most of the vills of the Isle of Ely were substantial nucleated areas, as was the Norfolk island that carries the vills of Hilgay and Southery. The southern fen edge also had large nucleated villages, but Horningsea differs with three settlements: Horningsea, Eye, and Clayhithe.

The main vill is mentioned in 870 and all three in 975 (Hart 1966). At Eye Hall village earthworks survive (RCHM 1972, 71–3).

Ravensdale (1974, 126–37) has made a detailed study of Waterbeach, Landbeach, and Cottenham. A 1459 survey of Waterbeach shows that there was an old part of the vill, forming an approximate square, with two manors and the church. To the south was a 'ribbon development', probably added in the thirteenth century, laid out over a furlong. Cottenham has a core of rather irregular property plots centred on a green. To the north and the south are much more regular plots with long back gardens bounded by fences in the shape of an aratral curve. They seem to have been laid out over open-field strips, probably representing a Norman addition to the Saxon village. The manor, belonging to Crowland Abbey, lay in the central core, but the church lies to the north, on the fen edge. The churches of Waterbeach and Landbeach are similarly sited on the fen edge, and Ravensdale suggested that the locations may have been chosen so that stone transported by barge could be used at the canal ends without further movement.

## Monastic settlement

Settlement in the Fenland was complicated by monasteries. The major centres were Saxon foundations, generously endowed with large estates. Smaller religious houses and their granges and hermitages were frequently located in isolated places, causing fragmentation of settlement patterns. Some of those with significant earthwork remains surviving were recorded by the survey and are noted below. Many of the larger manors had parks. Few of the sites, apart from the cathedrals, have any upstanding remains.

### Abbeys

Crowland Abbey church remains are an imposing landmark in the level landscape. Among the most remarkable of the surviving monuments is a medieval tripartite stone bridge under which the waters of the canalised River Welland flowed before splitting into two channels. The bridge now stands high and dry. Many estates of Peterborough Abbey lay inland, but in the immediate area it owned almost the whole of the Nassaburgh Hundred. Thorney Abbey, founded in 972, has twelfth-century remains surviving in the present parish church, its successor (Salzman 1948, 210–17; Pugh 1967, 222–4).

Ramsey Abbey, founded in 969, possessed much of north Huntingdonshire by 1086, and had estates in many other counties (Page *et al* 1926, 188–94). The present school contains a fine thirteenth-century undercroft (illustrated in Hall 1992, pl 6), and part of a fifteenth-century gate-house survives. Detailed estate records give a complete view of the estates and their management.

Ely is characterised by a multiplicity of detached settlements and manors. Many of them have late origins, probably being sited on demesne land that eventually acquired the status of manors or granges. On the other hand some of the sites may have had Saxon origins. Near or within the city were Beald Farm, recorded in 1109, Almonry Grange 1327, and Keton's Manor 1326. The demesne farms of the bishop were Barton Farm and New Barns. Away from the city were the hamlet of Chettisham, 1170, and three other 'manors', Braham 1086, Bedwell Hay 1302, and Turbutsey 974. Lying 3km south of the city, Braham is the most interesting Ely earthwork site recorded by the survey, with remains covering 4ha; there are ditches representing ancient house plots, a hollow way, and a fishpond, hemmed in by ridge and furrow. Out in the fen the islands of Quanea, Stuntrtey, Thorney, Nornea, and Shippea belonged to Ely. The striking manner in which Stuntney island rises abruptly out of the fen probably accounts for its name ('steep island').

Full accounts of the history of Ely are available (Miller 1951; Miller in Pugh 1967, 29–89) as well as published texts of some of the monastic records (Blake 1962). The present location of Ely is supposed to have been chosen by Etheldreda as the site of a monastery after her church at Cratendune had been destroyed by fire in 673 (Blake 1962, 2–5). The estates of Ely are detailed by surveys made in 1222, 1251, and 1417 (BL Cotton Tib Bii; CUL EDR G/3/27; *Cal Pat Rolls 6 Henry V*, 183–95). The 1251 survey reveals an urban populace, a market place, merchants, and artisans, as well as a rural component with work-service dues for 1500 acres of demesne. The 1417 survey gives a detailed view of all the city properties, street by street (see a reconstructed plan in Pugh 1967, 29).

### Smaller religious houses

There were a large number of small religious houses, among them those mentioned below, most of which have well-preserved earthwork remains.

Saint Gilbert of Sempringham founded the only wholly English religious order, the Gilbertines, in *c* 1131, and within a century a priory stood next to the village of Sempringham. 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. In 1293 the Priory was granted the right to hold fairs at 'Wrightbold', near Rigbolt House, Gosberton. Today only the village church survives; the village and priory have been levelled (White 1979d; Hallam 1965; Platts 1985).

At Denny Abbey, Waterbeach, there is surving Norman and later architecture. A barn, once the refectory, has a medieval tiled floor. Around the site are extensive earthworks forming enclosures and avenues. The monastic house lies in a large rectangular enclosure with three fishponds. The abbey was founded before 1159 and was in the care of Ely for about 11 years. In 1170 it was transferred to the Knights Templars who later used it as an infirmary for elderly members of the order.

After the Knights were suppressed in 1309 the buildings were eventually taken by the nuns of St Clare at Waterbeach, who removed to Denny in 1351.

Wicken Priory was located at an isolated site. No remains survive above ground but there are many architectural fragments, some of them large piers of thirteenth-century type (Fig 83). To the east are indistinct remains with ponds. Wicken was a house of Augustinian Canons, founded before 1228 and united with Ely as a Benedictine house in 1449 (Knowles and Hadcock 1953, 154; Salzman 1948, 249–54). At Fordham was a Gilbertine priory founded before 1227 (Knowles and Hadcock 1953, 173, 271).

*Fig 83 Thirteenth-century architectural fragments of piers from a garden on the site at Wicken Abbey (photo: D N Hall)*

Modney Priory lay in the extreme south of Hilgay parish on the boundary with Southery. It was a Benedictine cell of Ramsey, founded before 1291 (Cox 1906, 349). The prior of Modney and others had to maintain a drain between Upwell and Welney in 1529 (Wells 1830, ii, 11). Blackborough Priory lay away from Middleton vill, and at Shouldham there was a Gilbertine priory founded in *c* 1190 (White 1856, 622). Wormegay Priory was founded in the twelfth century and survives as a fine earthwork site with fishponds (Cox 1906, 407; Silvester 1988a, pl XIII, 148–9). A detailed plan was made during the survey.

**Granges, manors, and parks**

Peterborough Abbey had five monastic sites near Eye, all placed away from the vill. The manor at Eyebury lay in a small park, and the other sites, Singlesole, Northholme, Tanholt, and Oxney were granges. A bridge was built in the fourteenth century to Borough Little Fen so that Oxney cattle could get access for grazing (Mellows 1925, 60–1). All the sites are now farmhouses.

Within Ramsey parish were the granges of Biggin and Bodsey. Bodsey is recorded in 1216, and the present building contains medieval walls 3.6m high (Haigh 1988, 72–3). The Ramsey manor at Great Raveley had an isolated manor house set away from the vill (Page *et al* 1936, 198–9). There is a moated site with ponds and the mound of a dovecote; the surrounding area has other smaller-scale village earthworks that were mapped during the survey.

The manor house of the prior and convent of Ely at Sutton, now Burystead Farm, contains medieval work. Nearby is a moat forming an elongated rectangle (Pugh 1967, 161). As is common with many Ely manors, the manor house complex was located away from the vill. This seems to be a deliberate planning policy of the twelfth century and is often associated with the creation of a park, as at Downham, Doddington, and Somersham. Marham in 1086 belonged to Ely. The manorial site is well preserved in a square ditched and ramparted site (Silvester 1988a, 125).

Many of the major sites had parks. The Peterborough detached manor of Eyebury lay in a small park, and a 40ha park, newly identified, at Ramsey Abbey is bounded by a rampart soilmark. The Ely manor of Doddington, near March, had a great park of 80 acres and a little park of 70 acres in 1222. There were two Doddington cow pastures, one at Stonea and one at Dartford, both for 40 cows and two bulls. Many fisheries and meadows were let out.

Little Downham park and palace were frequented by medieval Ely bishops, five of whom died there. The park was first mentioned in 1222, and in 1251 contained 250 acres. There was a newly constructed windmill and fisheries at Downham Hithe and Manea. The kitchen and hall of Tudor diapered brick, *c* 1500, survive. The park of Downham has a distinctive boundary in the landscape, forming a large oval enclosure. An iron arrowhead, probably lost during hunting, was recently discovered. Ely monastery had the right to receive two deer annually from Downham Park and two from Somersham Park. In 1222 and 1251 customary dues from Littleport tenants included enclosing Downham Park with a ditch and building a wall around the bishop's garden at Ely.

## Fisheries

Fisheries were valued possessions in the Middle Ages, and rents were often paid in eels (Darby 1974, 31). Many small sites occur in the fen, making use of the resources of pasturing or fishing. They were identified

during the survey as small spreads of sherds, fish-net weights, bones, and shells.

Settlement areas with thirteenth-century pottery near East Kirkby, in Lincolnshire, seem to be fish-smoking sites, from distinctive pieces of curfew pottery discovered. Two sites on the medieval course of the Witham yielded a wide range of twelfth–sixteenth-century pottery sherds, animal bones, and mussel and cockle shells. Nearby sites have produced large stone fish-net weights (White 1984, 32). The pottery from the Witham sites originated from kilns in the Toynton area, with more distant material from Lincoln, Nottingham, and Bourne. The approximate locations of the sites are shown on a map of 1723 by Pitchford. One of those surveyed was known as Wren Booth, and the regular use of the word in connection with riverside sites (such as Swine Booth, Picklebeck Booth, etc) suggests that they were fisheries. Many of them belong to parishes that flank the east of the Witham valley (Darby 1957, 67), and a number of fisheries were recorded in an 1115 grant to Bardney Abbey (Thompson 1856, 355).

Peterborough Abbey owned one of the manors of Thurlby in 1086, and a fen riverside place called Abbots Cote, in 1307, was probably a fishery. A small site at Neslam Fen, Pointon, near the Forty Foot Drain, may have been another fishery (Dugdale 1772, 247).

At Stanground there is a medieval site near the Fengate Bronze Age complex. A wide scatter of thirteenth- and fourteenth-century sherds represents a landing or fishing platform on the Catswater, where there was a ferry point in the fifteenth century linking Peterborough to Thorney and Whittlesey. The site was at a strategic point where the counties of Cambridge, Huntingdon, and Northampton met, as well as the lands of Peterborough, Thorney, and Ely Abbeys.

Whittlesey Mere was famous for its fishing; fishery landing stages were mentioned in a boundary description of the Mere made in 1225–8. In 1306 the abbot of Thorney had five 'cotes' abutting the Mere and five boats were allowed to fish. Several cotes are marked on a map of 1786, and during the recent survey three medieval sites were discovered on the south side of Whittlesey Mere. One site produced sherds of late thirteenth-century pottery, and during a fen blow large numbers of small lead fishing line weights were revealed (Hall 1992, 30–3). Subsequent excavation produced many more finds and quantities of fishbones, but no structure survived (French 1992).

## Water management

### Rivers and principal drainage channels

By the Middle Ages many changes in the courses of rivers and brooks were necessary to make grazing productive and to protect rich agricultural siltland. The prehistoric River Witham had silted up and the present course close to the eastern edge of the valley had been adopted by 1331 and probably by 1086. South of Dogdyke the transfer in the main outfall from Bicker Haven to Boston took place before the late twelfth century (Hallam 1965, 105), there being much river traffic along the Witham between the towns of Boston and Lincoln by 1205. In 1342 Kyme Eau, branching off the Witham towards Sleaford and formerly 'a very convenient passage for ships and boats', was blocked by mud and sedge. Along its course cargoes of wool, wine, corn, cattle, herrings, and turves had previously travelled (Dugdale 1772, 196; Barley 1936, 14).

The Glen is a canalised river; it was called the Baston Ea in 1293, and the Edyke in 1355. In 1293 the towns of 'Baston, Turleby, Obthorpe and Wyvelsthorpe' were ordered by the commissioners of sewers to 'repair, cleanse and raise the banks...of the...Baston Ea' (Dugdale 1772, 227). In 1325 an inquisition decided that the 'Baston Ea ought to be digged and cut as it anciently used to be' (Dugdale 1772, 202). Localised drainage improvements and water management schemes continued throughout the Middle Ages. In 1420 Morton and Bourne had turned 'the fresh waters towards the north which ought to run eastward to the sea' (Dugdale 1772, 197).

The medieval course of the Welland to Crowland was artificial. In 1438 it was stated 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, and other banks are mentioned (Dugdale 1772, 217). Much of the Nene water was taken by a canal, the Whittlesey Dyke, directly from Peterborough to Benwick. This was a rationalisation of the pre-Flandrian route. Some Nene water found a circuitous course through Whittlesey and Ramsey Meres to Benwick. The combined rivers joined the western Ouse at Benwick and ran to March.

The pre-Flandrian Ouse ran from Earith west of the Isle of Ely, joined with the Nene at Benwick, and continued to Wisbech. At March a change in route was made by cutting an artificial channel, 12km long, through a narrow neck of land in March island to the Old Croft River at Upwell. This significant drainage work was probably done in the late Saxon period, to help effect the drainage and utilisation of the siltlands. By the early Middle Ages some of the Ouse waters took a route from Earith, south of the Isle of Ely, and joined the Cam.

The eastern Ouse-Cam had a sinuous course between the Ely islands of Stuntney and Quanea and originally ran to Wisbech. By the twelfth century a diversion was made to Ely, doubtless for the benefit of the monastery and cathedral. Another straight length of the Ouse, the Ten Mile River, was probably made at the same time, taking all the south-eastern Fenland waters to Downham Market and King's Lynn.

The straight course of the Little Ouse from Hockwold to its junction with the Great Ouse is artificial; from the layout, the Little Ouse was made first, the Great Ouse from Littleport being added to it. Had the Great Ouse cut been made first, the Little Ouse would lie further west to avoid looping around the island of Hilgay and Southery.

The Lark has a straight course along the Cambridge-Suffolk boundary that is likely to be medieval. At Prickwillow it rejoins its old sinuous course to link with the Ouse.

Most of the abandoned river channels can be identified as roddons or as sinuous dikes in the modern field pattern. None of the diversions has a precisely documented statement, but all the major changes had occurred by the end of the twelfth century. Some of the canalisations have been claimed as Roman (such as the Ten Mile River), but there is no satisfactory evidence for this.

**Canals and lodes**

As well as the major rivers and drains there was a complicated network of local brooks and canals, called lodes, linking the rivers to form a communication network between fen edge vills and the islands (Fig 82). Some fen edge brooks were taken to major drains by canals, such as the lodes of Billingborough, Pointon, and Hacconby. In this case the receiving drain was the *midfendik*, cut along the centre of the belt of fen between the siltlands and the western Lincolnshire upland.

Many lodes were obvious artificial canals, cut straight across the fen, like those belonging to the abbeys at Ramsey and Sawtry and used to bring building stone from the Peterborough region. In 1230 it is recorded that Monkslode, at Sawtry, had been made 'to preserve the lands, meadows and pastures of the men of Walton, Sawtry and Conington from the waters descending...and for navigation of corn, turves and other things to diverse places' (Hart and Lyons 1884, 177). Ramsey was served by Cnute's Dyke; it is unlikely to be a drainage work since it cuts across the Wood Walton fen basin. A tenth-century date is probable from its monastic connections. Another straight canal began at Fenton Brook (the *lode de Fenton* of 1285; Hart and Lyons 1893, 57–8) in the south, crossed the western Ouse near Ferry Hill, Chatteris, and continued to Doddington where it probably followed the eastern fen edge and linked with the Nene at March. It is most likely to have been constructed for the benefit of the chief administrative manor of Ramsey Abbey at Broughton.

Many crooked lodes, such as the Darcey Lode, west of Manea, are artificial. The Darcey Lode followed the contours of the medieval fen edge on the west and then utilised a natural watercourse along a roddon. It was called *darsey* in 1437 and is probably the same as the *moneyeslode* (Manea lode) of 1251. It continued, as the Oxlode, on a straight course to Little Downham Hithe.

Three former canals near Southery are now ridges of silt. From the Wissey, a canal shows on aerial photographs as a light band, and leaves the river making for Fordham on the upland edge in Downham parish. *Fordhamhithe* is referred to in 1425. Another canal creates a 'short cut', 1.7km in length, between the Ouse and Wissey, and a third canal links the Ouse with the southern tip of Southery island (Silvester 1991, 91–2).

Near Ely some of the islands were connected by causeways, two of them identified during the survey. A trackway made of small pieces of gravelly flint runs across fen ground between a peninsula of Witchford and Coveney island, taking the shortest route. Another similar causeway linked two closely adjacent peninsulas between Witchford and Ely. Some causeways have been used as modern roads; Coveney island is linked to the eastern end of Witcham by the Long Causeway and to Wardy Hill by the Short Causeway.

**Hithes**

In the north, marine silt deposits acted as a barrier for water transport, except along major rivers. In the south, peat fen allowed the easy construction of canals and landing stages called hithes. The name *hithe* is common around the southern fen, although few of the sites are now exposed because of later building. Littleport hithe was on the Ouse in the village, and Witcham Hithe survives only as a fen name. At Chatteris, a hithe at *wilihethe*, mentioned in 1251, was located on the island next to Fenton Lode. Yaxley, lying far from the sea, was a significant inland port throughout the Middle Ages; coal and other goods were transported 55km inland to central Northamptonshire as late as 1628 (Hall and Harding 1985, 133).

Near Downham Hithe quantities of pottery, whetstones, and pieces of lava quernstone have been recovered, all of them imports into the Fenland. The finds represent clearance of damaged cargoes from vessels. Trial excavations were unable to locate any surviving landing stage nearby. The canal from the hithe is easily identified in the present-day field pattern as a slightly crooked dike running into the Oxlode; it is marked on Bleau's map of 1645. Ely expanded down to the edge of the diverted river Ouse, and several hithes were constructed. *Bradehide* was mentiond in 1210, and nearby were *castel hythe*, *monkeshithe*, and *stokhithe* (Reaney 1943, 216). Lying on the old course of the Ouse was the monks' quay at Quanea.

Most of the southern vills were connected directly to the Fenland waterway system and with the sea port at King's Lynn. At Cottenham, Landbeach, and Waterbeach, there were canals leading to the villages. Cottenham Lode had an arm next to the village where there is a low depression for boats to turn round at a hithe. The link with the West Water was by the channel now called Chear Lode, but in *c* 1070 called Cottenham Lode. The lodes of Swaffham and Reach had quays at the villages in the Middle Ages. Their function was probably primarily as canals for transport, although they would also have improved drainage by removing water from the high ground.

Methwold Hithe takes its name from the port and forms a second nucleus of the parish, having its own chapel. The name is recorded as *Otringheia* in 1086 and *Oteringhithe* in 1316. A hithe stood at Setchey on the River Nar; it was ordered to be cleansed of wrecks, rubbish, and silt in 1274–5 (Silvester 1991, 68). Middleton Hithe was an older name for Blackborough End; the location was identified from pottery finds (Silvester 1988a, 129).

**Meres**

In the southern Fenland dominant features of the landscape were freshwater lakes called meres. Whittlesey Mere, in the west, was one of the largest lakes in the country, at about 760ha. An area of marly deposit on the ground closely corresponds to a 1786 map (by Bodger, reproduced by Cambridgeshire County Council, 1985). Nearby were Trundle Mere, recorded *c* 955, Draymere 1022, and Ugg Mere (Page *et al* 1936, 186). Whittlesey Mere was on the Fenland transport routes; when it was drained in 1848–52, large pieces of stone were found, each about a cubic metre in size and scoured with masons' marks. The stones were presumably a capsized cargo once destined for a monastic house or other important building (Hall 1992, pl V) .

Redmere and the meres of Willingham, Stretham, and Soham are now marked by spreads of white marl, like Whittlesey Mere. Soham Mere was large, 500ha, giving its name 'Sea-ham' to the vill.

**Reclamation and flood defence**

There was only very limited reclamation in the peat fen; it was not possible to keep water out of the lows created by peat shrinkage until pumps were available. It was, however, possible to create meadows and closes at the fen edge; much of the area of Wrangle Common on the northern fen edge was enclosed meadow by 1200 (Hallam 1965, 91).

Manea Dams, now skirtland, was probably a medieval intake from a shallow part of fen. 'Skirtland' is the name given to pre-Flandrian mineral soils exposed where drained peat has wasted away. On the west Manea Dams was protected by the bank of the Darcey Lode, and on the south by the rising ground of Manea island. An extension of Little Downham Park into the fen formed a lobe enclosing *c* 130ha (315 acres).

A large area of Coveney fen, also called the Dams, was enclosed before 1636. It was divided into long enclosures by irregular linear dikes surviving in modern fields. Heywood's 1636 survey refers to the 'severalls called Covenie Dames' (Cambridge CRO, R59/21/3/2). The Dams reclamation is one of the largest known in the peat fen (*c* 350ha) and, like the much greater intakes made in the silt fen during the twelfth century, took in ground from an area of shallow fen.

## The economy

Access to the Fenland was in great demand, and many parishes on the fen edge have an elongated shape to take advantage of the differing resources of upland, fen margin, and fen. Billingborough is 8km long from upland to fen but only 2km wide; similarly Hacconby is 8km long and a mere 1km wide.

Summer grazing of meadows and extraction of peat were demanded by villages of the fen, the fen edge, and well beyond. In 1358 wethers from Terrington (in Marshland) were driven to 'Sutherey' Fen (*Cal Inq Misc*, **3** (1912), 123). The abbot of Bury St Edmunds complained in 1307 that people had entered his meadows, marshes, and private pastures at *Suthreye by Helegeye*, mowed his grass, and carried it away (*Cal Pat Rolls Edward I*, **4** (1898), 549). Medieval account rolls refer to sedge and reed, used for thatching and kindling, and rushes, used as floor covering (Darby 1974, 33). In the early sixteenth century an act was passed restricting the taking of wildfowl and their eggs (Darby 1983, 44; see also chapter 10).

**Fen resources**

The fen, although often depicted as a dreary wasteland in contempory descriptions, was a valuable resource of food, fuel, and grazing (chapter 1), and there were complex agreements between manors about rights of usage. The Great Fen (Borough Fen) at Peterborough was used by all the inhabitants of the upland villages within the Hundred or Soke of Peterborough for common grazing. In contrast, Flag Fen, formerly called Borough Little Fen, belonged only to the inhabitants of Peterborough. Ramsey and Thorney Abbeys had claims in Ramsey marsh and it was agreed in 1224 that Thorney should have the part lying towards its manors of Yaxley and Farcet (Page *et al* 1936, 166).

One of the main fen products was peat, in the form of turves and used for fuel; it was nearly as important as summer grazing rights. In 1813 East Fen, Stickney, was 3–4ft deep in water, the result of peat extraction (Young 1813, 263). Padley (1882, 65) recorded that peat was dug in the nineteenth century leaving large square holes, similar to peat extraction methods in Ireland. Dugdale, in 1662, had commented on the large number of pools called 'Deepes' connected by artificial channels called 'rows' (see chapter 10).

Billingborough labour services of the late thirteenth century included digging turves (Platts 1985, 64), and new meadow was made by 1418. In 1125 work services due to Peterborough Abbey included a scythe-boon for cutting a cartload of reeds from Thurlby (Hallam 1965, 207). At Deeping Fen there was a dispute about enclosures near the prior of Spalding's turbary in 1294 (Darby 1956, 83–4), and in 1415 the men of Spalding did much damage to turf, sedge, and bulrushes in Crowland Common (Darby 1956, 91).

During the nineteenth century, peat in Thurlby Fen was 3–5ft deep (Wheeler 1896, 458). Bourne, Morton, and Dunsby fens still had sufficient peat left to be worth extraction in the 1870s but it was no longer dug (Skertchly 1877, 135).

Little Downham villeins could cut turves in 1325, valued at one shilling per 500, but could not sell them to the men of other villages. Sedge, used for thatching, was likewise freely available to the villagers, but was not to be sold beyond the bounds of Downham in 1315. Manorial officers were appointed to keep the fen under control, and in the summer this included ensuring that it did not catch fire, though this happened in 1376 (Coleman 1984, 20–2).

A manorial extent of Methwold, 1278–9, refers to 1000 acres of fen in which the townspeople could pasture their stock and dig turves, while the people of the

*Fig 84 Aerial photograph of the open fields of Soham showing curved, narrow holdings lying within medieval furlongs (photo: DoE 1975)*

soke of Methwold could only run their animals on it (Blomefield 1805, ii, 211). Peat from Marham turbaries was claimed by several Norfolk religious houses, some of them not near the fen, such as Castle Acre, Sporle, Wendling, and Massingham.

The extent of peat cutting throughout the southern Fenland is impossible to estimate, but its regular mention in monastic and other accounts, as at Little Downham, shows that it was an important commodity. No physical remains of any cuttings survive because 3–4m of peat have wasted away since the seventeenth century, leaving a depth of no more than 1m in places, more often less, and frequently none at all, with old land surfaces or Flandrian deposits being exposed.

The only industries of the Fenland, apart from the direct exploitation of its natural resources, were the production of salt (see below) and pottery, both fuelled by peat.

Pottery was made in many centres around the Fenland. Kilns were known at Toynton All Saints and elsewhere along the ridge of high ground to Bolingbroke. Many new sites were found during the survey at the Toyntons and the Keals, identified by prodigious quantities of broken potsherds, wasters, and pieces of kiln fabric. The wares dominated local markets in the Middle Ages and were traded throughout the county and beyond (Healey 1984, 75). Kilns operated at Bourne during the fifteenth to seventeenth centuries (Healey 1969a).

At Ely dark green- and black-glazed wares on a red fabric were made, very like wares from Tattershall and King's Lynn. The production period dates from the fifteenth to the seventeenth centuries. A possible site is the Potteries, called *pottereslane* in 1280 (Reaney 1943, 215). By the sixteenth century, brickmaking was a significant activity around Ely, with kilns at Shippea and Little Downham. In 1990 a kiln site was confirmed at Bluntisham from the enormous spreads of sherds in several gardens. Production occurred during the fourteenth to fifteenth centuries, in a similar fabric to Bourne wares.

At Mildenhall, pottery debris, some of it over-fired and probably representing a kiln site, was found during the survey (Martin in prep a). The fabrics were both oxidised and reduced with a few glazed sherds, similar to thirteenth- and fourteenth-century material produced at the kilns of Grimston, Norfolk.

### Fields

All of the fen edge of the north and west, and as far as Cambridge in the south, had fields ploughed in narrow, ridged strips of the Midland type, grouped in blocks called 'furlongs'. East of Cambridge and on the the East Anglian fen edge there was strip cultivation but no ridging (Stradset near Downham Market is an exception; R Silvester, pers comm). The southern islands of the Cambridgeshire Fenland and the Norfolk island of Hilgay-Southery fall into the ridge and furrow region. Most of the individual ridges are now ploughed out, but furlong boundaries survive as long soil banks in modern arable fields. Along all the fen edge and islands of the south it is possible to reconstruct a complete open-field pattern from these soil boundaries. For details of the field and documentary techniques see Hall 1982. Furlong boundaries were recorded in all the areas surveyed; reconstructed plans were published in a few cases (Billingborough in Hayes and Lane 1992, 26).

In the north, the clay soils of Stickney retain many traces of its fields. Toynton has a field book or survey of 1614 which includes maps showing the direction of strips in each furlong, gives furlong and open-field names, and records the land use (Lane 1993, appendix VII, figs 92 and 93; from LAO 5ANC 4/A/4). For East Keal a map of 1757 shows a conventional three-field system with West Field, East Field, and North Field (LAO Misc Dep 2/1).

Ridge and furrow survives at Pointon and Dowsby, and remains can be seen on aerial photographs taken in the 1940s. Dunsby has a map showing that most of the fields were open in 1647, with a few closes, a windmill, and a moated site (Hayes and Lane 1992, 96). Soham has never been enclosed and there is the most remarkable survival of medieval fields, second perhaps only to Laxton, Nottinghamshire. The modern landscape is that of the Middle Ages, especially in No Ditch Field and in North Field where the main boundaries of the present-day farms lie between long lines of furlong boundaries. The overall pattern is a sweep of long slightly curved areas, familiar on many seventeenth- and eighteenth-century pre-enclosure maps (Fig 84). In most of the parish the present holdings are consolidated into modern 'fields' without any physical demarcation, except for the furrow or crop, and are ploughed flat. However, in North Field, there are still a few single-acre narrow strips, and there were many more until recently. Even more remarkably the strips still have the aratral curve of an elongated reverse-S, which must be very inconvenient to work with modern farming machinery. There are two commons that go with the open-field land, North Horse Fen and South Horse Fen. These remain in an ancient unploughed state, characterised by a strange uneven appearance, pocked by large ant hills, comparable with old upland commons in the North of England (such as Cockfield, Durham). In North Horse Fen only those owners who have arable land have commonable rights.

The demesnes of Ely monastic properties are fully described in the surveys of 1222 and 1251, with additional detail from court rolls and account rolls. In 1222 the Haddenham demesne was 919 acres divided nearly equally between three fields. The surviving furlong boundaries correspond well with a map of 1827. Many other parishes have maps of the fields in their post-medieval form: Upwood 1853, March 1630, Chippenham 1712, and Rampton 1754.

Much detail is available for those places that have field books or surveys of the Toynton type. Landbeach has three field books of 1477, 1549, and 1727. Charters show that there was a three-field system in the thirteenth century which became more complex in the fourteenth century. At enclosure in 1813 there were four fields, Dunstall, Mill, Sachbow, and Banworth, the same as in 1727, but the last two were worked and cropped together, showing that there was really a three-field system in spite of the four names (Ravensdale 1974, 99–108). Willingham has a field book of 1812, arranged in groups of furlongs, each of which has a map. The boundaries correspond exactly to the soil banks on the ground.

## The silt fen

As with the Roman and Saxon periods, the silt fen is a distinctive area, very different in character from the fen edge or the islands of the south. It is notable for attractive, stone-built medieval churches, early brick houses, and many trees near the villages. The road system is complex, with a system of tracks around the medieval fields. As well as nucleated villages, there are dispersed settlements of medieval origin along the droves. The whole area is a remarkably unchanged piece of medieval landscape in its general layout.

### Rural settlement

By the time of the Domesday Survey in 1086 a pattern of established villages had formed on the dry silts. The plans of the oldest villages on the high ground near the Wash are often irregular, but those of later date are

linear, partly because they are dispersed along major droves, and partly because they lie along the backs of roddons (Fig 85).

In the late Saxon period all the occupation sites in the Norfolk silt fens were set on roddons and levees. No pre-Conquest site occurs on flat ground or beside an early track, but by the Conquest there were settlements lying around greens. These are unique to Norfolk, and do not occur in the siltlands of Lincolnshire or Cambridgeshire. Norfolk Marshland has a maze of greens varying from large areas such as Mear Green, Tilney (30ha), to small patches of common ground between houses. The greens are associated with the primary vills and are less usual in the later settlements such as Tilney St Lawrence and Terrington St John. This is similar to the pattern in central Norfolk where Wade-Martins (1980, 88) found that greens appeared as settlement foci in the twelfth century.

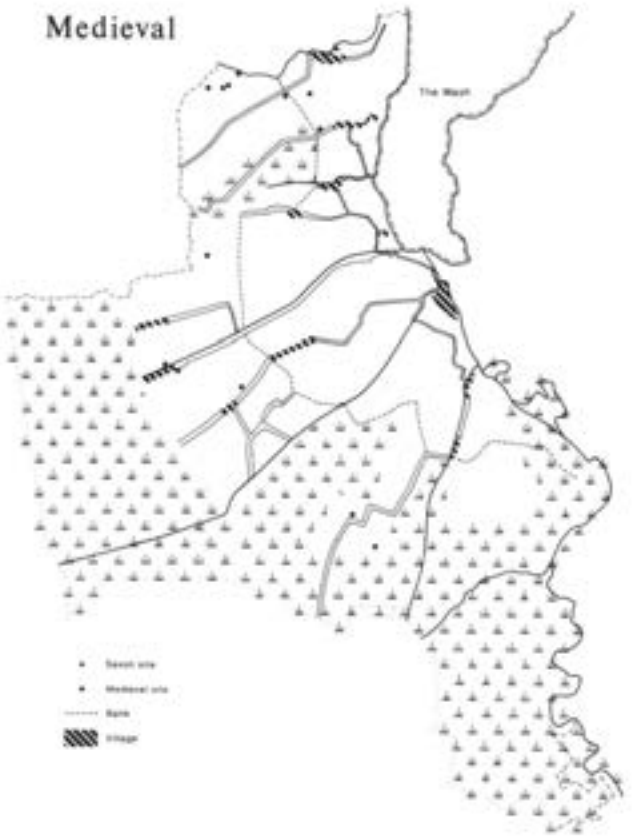



*Fig 85 Cambridgeshire medieval drove settlement in the siltland (from Hall forthcoming)*

During the twelfth and thirteenth centuries there was large-scale reclamation from the fen, accompanied by the creation of long straight droves up to 120m in width. From the thirteenth century the droves attracted settlement, particularly in the sections nearest to the primary vills. Each drove was a dynamic feature of the medieval landscape, developing with land reclamations towards the fen. The archaeological finds confirm this growth: 240 dated medieval pottery spreads from Marshland yielded 33,570 sherds, showing a pattern of settlement expansion, with a great increase in the number of sites during the thirteenth century (Silvester 1988, 162, 174).

Marshland is the most striking example of drove development, where seven droves link the seven main vills with a large common marsh lying 5km to the south (Fig 86). These are well illustrated by Haiwarde's late-sixteenth-century map of Marshland, showing rows of stylised houses. In Cambridgeshire the linear vill of Parson Drove and the hamlet of Tholomas Drove lie on droves 3km long (Fig 87).

Where there was sufficient reclaimed land new vills and parishes became established, with the name of the parent vill usually being adopted and the pairs distinguished by a plethora of saints' names: Terrington St Clement, Terrington St John, etc. In the case of Wiggenhall St Mary Magdalen, the saint wins and the vill is simply called 'Magdalen'. The secondary vills were founded by the thirteenth century. Wisbech St Mary existed by 1109 (Pugh 1967), and the individual Wiggenhall parishes are recorded at a similar time (Owen 1981, 11).

One of the best preserved droves is at Tilney St Lawrence, where the fourteenth-century parish church lies on one side and Aylmer Hall, the successor to the manorial site, lies opposite, 120m away, giving an immediate appreciation of the drove width. It is preserved in pasture fields, worn down as a hollow way, with the edges accentuated by banks on which stand existing houses, or which have vague earthworks of former medieval houses. The earthworks of a probable manorial centre are preserved in pasture and cover an area of nearly 1.3ha (Silvester 1988a, 60–3). The raised interior has several rectangular platforms and a blocked-off well, and is bounded on the south side by a prominent moat-like ditch. In 1798 the site was termed 'Broughton Manor House' (Norfolk CRO BL 1475). Terrington St John drove is similarly excellently preserved near the church with banks of linear earthworks and a few seventeenth-century houses lining the edge.

## Other sites and finds

As well as the secondary vills there were many other kinds of small sites. In common with the rest of the Fenland, much of the siltland was owned by monastic houses that had granges and moated sites widely dispersed throughout the region. Many of these were founded away from the main villages during the Middle Ages, there being moated sites at Rigbolt, Gosberton, and Monks Hall. Rigbolt originated in the twelfth century and became a grange of Sempringham Abbey; fairs and markets were held there from 1293. It survives as an impressive earthwork with a moat enclosing an area of 160×180m (Fig 88).

A moated site at Pinchbeck belonged to the Priory of Spalding, and in *c* 1280 a manor house was built. Cowbit village developed during the thirteenth century (Hallam 1965, 39) along New Fendyke, the modern Stone Gate. Spalding Priory established a grange there soon after 1294; late medieval pottery was found.

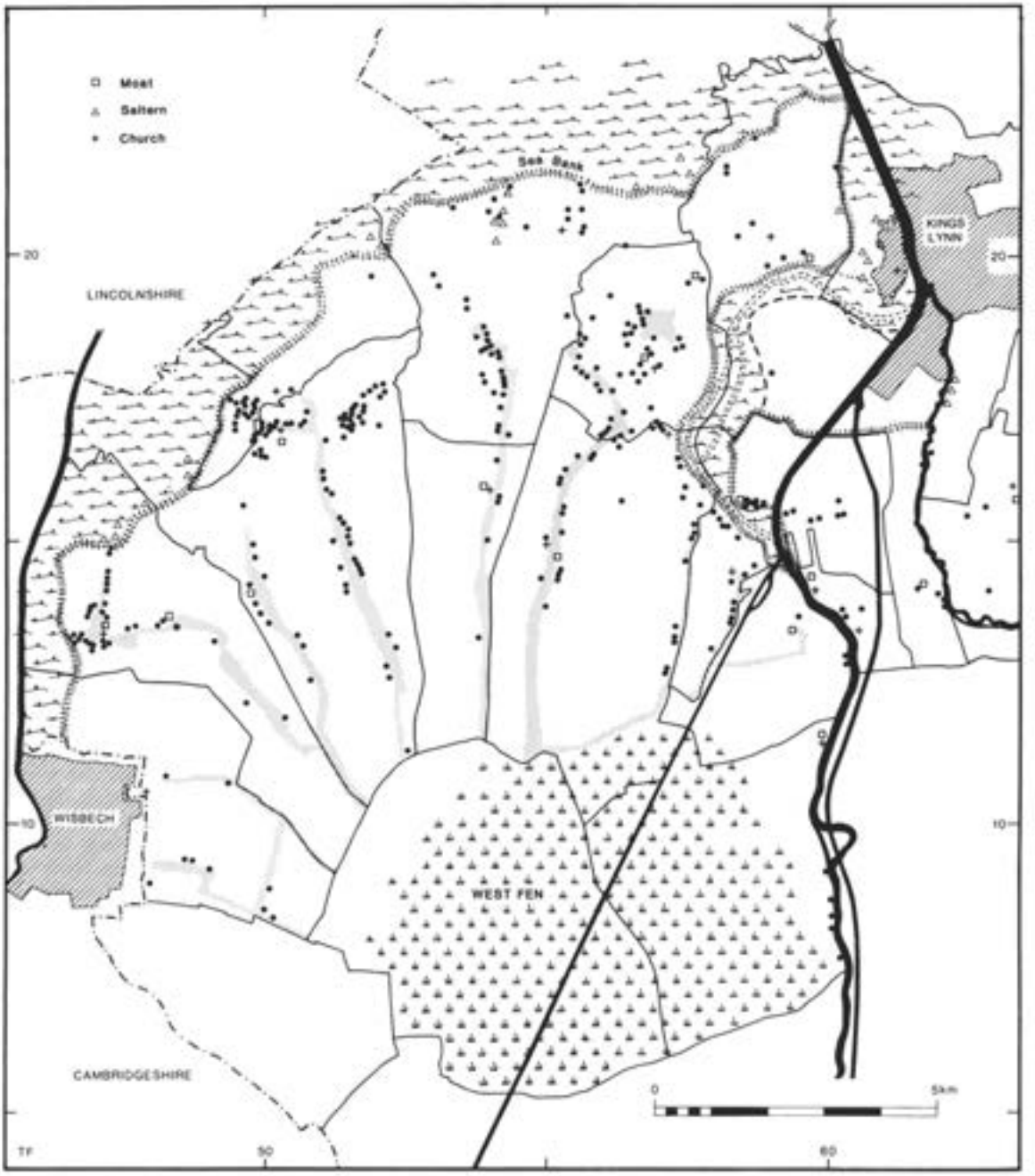



*Fig 86 Norfolk Marshland drove settlement with many small sites extending along the wide tracks leading to Marshland Fen (from Silvester 1988a)*

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.

There are fewer moated sites in Cambridgeshire, probably because almost the whole area belonged to Ely monastery and bishopric, so there was no need to have small granges separate from the main manor. At Wisbech St Mary, Hiptoft Field, a moated site preserved in an orchard, was destroyed in 1983. A chapel of St Mary in the Sea stood on the Sea Bank at Newton, and became a chantry college in 1406. A leper hospital on the boundary between Elm and Wisbech was founded in about 1378 (Clay 1909, 281), and there was a small chantry at Upwell, founded in 1203 (Salzman 1948, 258–9). Part of the structure is still visible.

At Walsoken a manor of Ramsey Abbey lay at a site called Popenhoe set away from the vill in New Field by 1274 (Blomefield 1808, ix, 121). In West Walton there are two moated sites that probably mark the centres of demesne farms. One site had inlet and outlet channels to the moat and a causeway to the interior (Silvester 1988a, fig 118g, pl VIII). In Wiggenhall St Germans a moated platform produced fourteenth- and fifteenth-century pottery; it was the site of Fitton's manor, first documented *c* 1270 (Blomefield 1808, ix, 186). The hamlet of Little Seche in West Lynn flourished during the thirteenth and fourteenth centuries according to pottery discovered, which agrees with a documentary reference of 1202 (Ekwall 1960, 412).

Among the smaller sites a few windmill mounds have been identified. Cherry Hill in Leverington is a


*Fig 87 Aerial photograph of Tholomas Drove, Wisbech St Mary, Cambridgeshire, showing the wide east–west drove, now taken into arable land, with a small settlement at the east; the photograph also shows the soilmark of a Roman canal (A–A) (photo: Cambridge University Collection for Aerial Photography, copyright reserved; RC8-EE 196 (1982))*

prominant mound identified by Woodgate (1938) as 'le myll hill' mentioned in 1419. Elm has a windmill mound placed on a roddon to catch even more wind than generally occurs in the Fenland. There were pieces of lava millstone with pottery sherds of the thirteenth–fourteenth centuries. A mound at Walpole St Peter, near the centre of the village, is described in a document of 1610 as the 'Mill Hill' (Woodgate 1938).

## Salterns

Salt was made in the siltlands by two methods. The commonest was by collecting wind-dried, salt-encrusted, coastal mud, extracting a concentrated brine, and preparing salt by evaporation of the solution using peat fuel. Large quantities of peat had to be brought to the mud flats, and high mounds or banks of extracted mud were formed. The other less usual technique was by evaporation of tidal brine that backed up brooks in the peat fen, the method used by the Romans. This process saved having to carry peat far, but the salinity of the water would be low.

Saltmaking occurred on the northern coast in the eleventh century at Friskney, Wainfleet, the Tofts, and Wrangle. There are spreads of pottery, ashes, and burnt clay, similar to finds on saltern mounds seaward of the Tofts. The Toftland was created artificially by dumping silts taken from the marsh during saltmaking (Waller 1988, 60; 1993; Hayes and Lane 1988). An outline of the methodology of salt processing on the Toftland has recently been given by McAvoy (1984, 37) following excavations on a mound at Wainfleet. Historical evidence for the Wrangle salterns has been described by H E Hallam (1960; 1965). A grant to Waltham Abbey in the late twelfth century provided pasturage in Wrangle for oxen 'sufficient to maintain seven salterns at the rate of six oxen to each saltern' (Hallam 1965, 170). This need for saltwater marshes, freshwater fens, and pasturage demonstrates the interactive use of the different Fenland environments.

In Bicker Haven there are spectacular remains of the saltmaking industry, with mounds rising to 3m. They are most prominent near Bicker, Donington, Wigtoft, and Quadring. The Domesday Survey recorded a salt industry, centred at the head of the Haven, with some activity in Quadring (H E Hallam 1960, 87; Healey 1977, 4). The Haven was silting during the Middle Ages and the salters were forced south, so that by the fourteenth century Quadring and Gosberton were the centres of the industry. Levelling of a mound in Bicker Haven revealed two peat-fired hearths with pottery of the first quarter of the fourteenth century (Healey 1969b, 110). Briquetage was not found and the salt extraction equipment differed from that in use during the Iron Age and Roman periods. Within the old Haven near Quadring and Gosberton are damaged

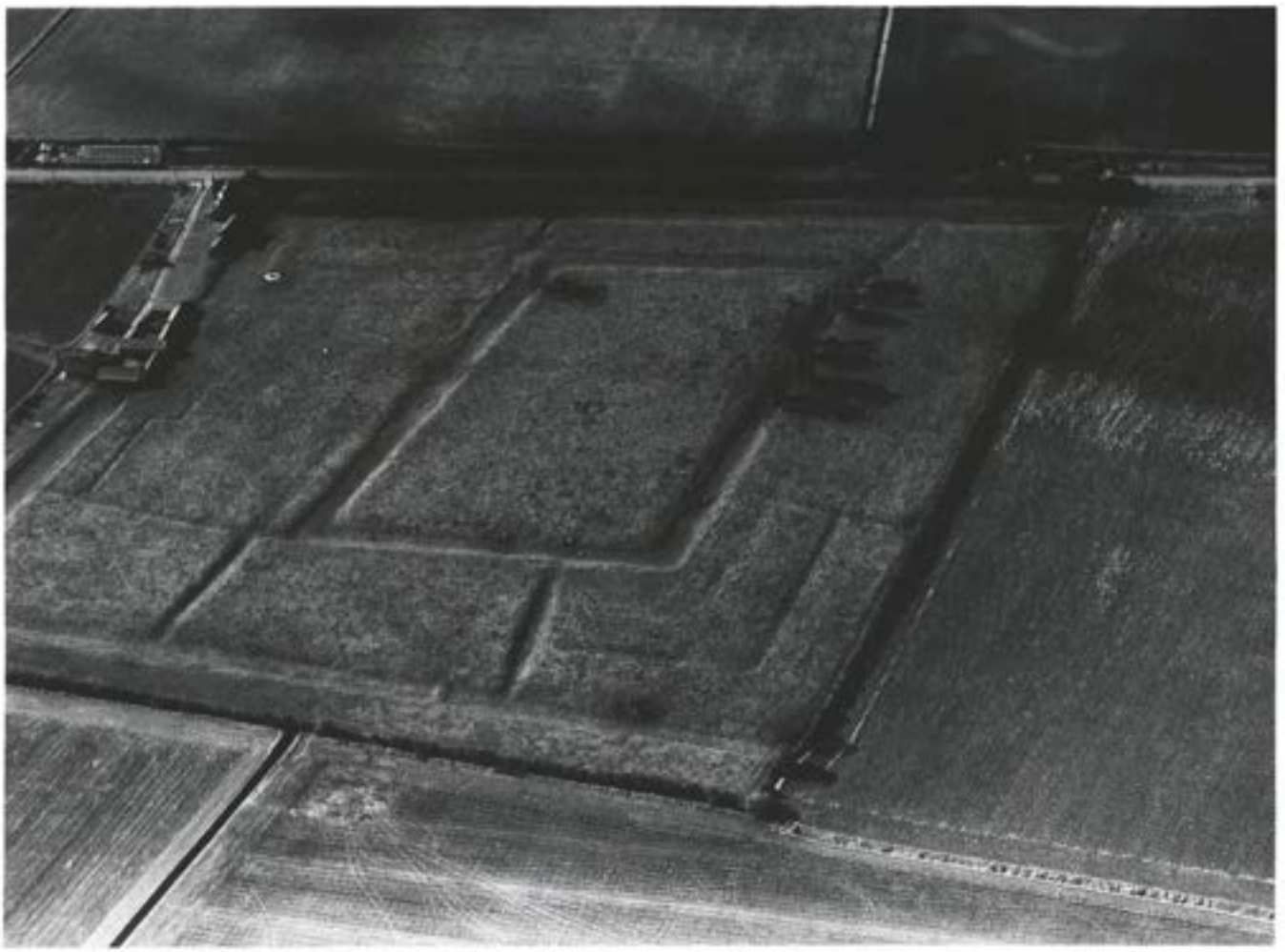


*Fig 88 Earthworks near Rigbolt Grange, Gosberton, Lincolnshire, forming a large rectangular enclosure (photo: Cambridge University Collection for Aerial Photography, copyright reserved; AQB 89)*

remains of rectangular pits. The name Saltgate Floors (formerly Saltcote Floors) relates them to the saltern industry, though their precise date and function are unclear. In this part of the Haven saltmaking is described as 'having been left off' in 1662. Salterns on the coastal marshes of Pinchbeck were granted in 1327 to Bourne Abbey along with common in Pinchbeck Fen 'for fuel for the saltern' (Hallam 1965, 170). Similar grants of salterns with accompanying turbary rights in the fen occurred at Holbeach (H E Hallam 1960, 92).

In Cambridgeshire salterns are known from historical records at Newton. It is possible that the large banks on the seaward side of the marine defence, previously interpreted as breakwaters (Hall 1977), are saltern mounds. They only occur at Newton, which agrees with the historical evidence, and they are similar to the large mounds at Bicker Haven and West Walton. However, the linearity of the Newton banks makes them different from the others and it is possible that the mounds were left in a linear form to act as breakwaters as well. A saltern has been reported on the Sea Bank at Newton, and at Leverington building works revealed a burnt area with fourteenth-century sherds in front of the Sea Bank in 1977 (Hall 1977).

Unique to Cambridgeshire are small medieval salterns located on roddons in the peat fen. At Tydd St Giles seven sites were associated with dark areas and occupation remains yielding bone and burnt stone. All of them produced much pottery of thirteenth- and fourteenth-century date, with hard, bright-red fragments of brick or briquetage. The briquetage would indicate that the sites were salterns, being exactly paralleled by Roman salterns, lying on roddons with tidal brooks flowing down the middle. This was confirmed by excavation at Parson Drove and proves that there was saltwater backing through medieval arable land until the thirteenth and fourteenth centuries. The excavation showed various channels supplying saltwater and vertically-sided settling tanks that must have been lined with wood. Bricks were incorporated in the evaporating hearths and were reused; this caused much less briquetage to be left than in the Roman period. The boiling vessels were probably large pottery jars (Fig 89; French 1992).

In Norfolk the saltmaking industry was important to Marshlanders, and groups of mounds lie beside the Sea Bank (Rudkin and Owen 1960, 77). From the surviving earthworks, Terrington St Clement and West Lynn were the main centres of salt manufacture in the Middle

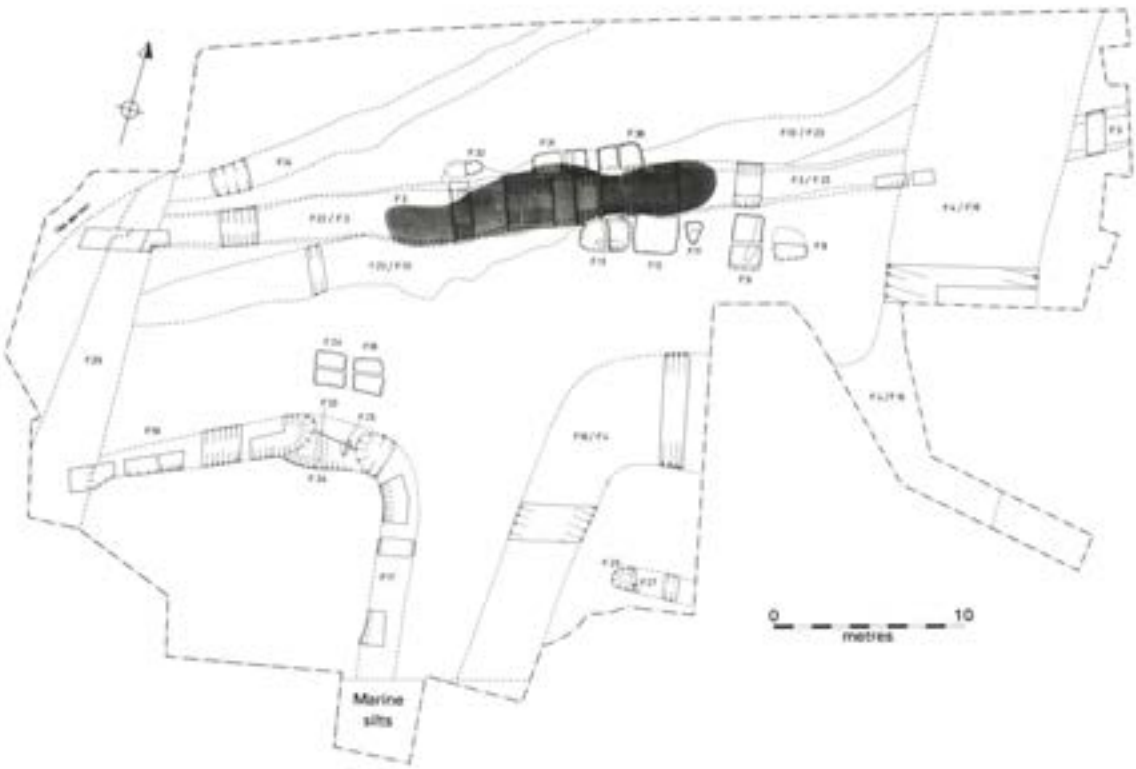



*Fig 89 Plan of fourteenth-century saltern at Parson Drove with supply channels and settling tanks (from French 1992)*

Ages, though beyond the Sea Bank there are groups and isolated mounds in several other parishes. Within the saltern zone at West Lynn, pottery suggests that salt-making dates from the eleventh century. At Terrington, where the Bishop of Ely had salt pans of considerable importance (Miller 1951, 83), the industry was probably established in the late Saxon period.

At West Lynn a series of low saltern mounds between 1 and 1.3m in height lie adjacent to the River Nar. Domesday Book records salterns attached to several holdings in Lynn in 1086 and these continued well into the Middle Ages. A group of mounds to the north of the village was levelled and produced several concentrations of eleventh- to thirteenth-century pottery. Lumps of fuel-ash slag were collected from the mounds and demonstrate the high temperatures required for the boiling of brine and production of salt.

West Walton had a large number of salt pans in 1086. Fourteenth-century records describe three acres in Neucroft which was 'in the sea' (ie beyond the Sea Bank) and adjacent to the lord of the manor's salt pan (Norfolk CRO Bradfer-Lawrence VIb, VII, 18). Abutting the outer face of the Sea Bank near Ingleborough are several large mounds, up to 200m long and 3m high, which are likely to be saltern mounds of the medieval vill. A map originating from *c* 1600 describes the mounds as the 'Salt Hills' (CUL: MS Plans 598).

## Drainage and flood defences

The main drains of the silt fen are almost entirely artificial, even though some of them are far from straight. This is most clearly demonstrated by comparing Figures 73 and 85. The Roman drainage pattern is natural, following roddons, but the medieval is not, being quite independent, except for the occasional incorporation of part of a natural channel.

Taking the Cambridgeshire silt fen as an example (Hall 1981), it can be seen that many nearly straight drainage channels were cut, the largest being the Great River of Wisbech, eventually extending back to Guyhirne and relieving all the freshwater fen there. At Elm such water as ran up the Roman Nene was diverted by a straight channel from Friday Bridge to the vill, and then to the natural Ouse. Another artificial channel was Elm Leam, now only a ditch in the fen but once part of the canal network of the fen coming from March and Chatteris.

The region continued to be defended from marine flooding by the Sea Bank, and freshwater from the fen was controlled by various Fen Banks, first created in the late Saxon period. Banks flanked the sides of the major rivers to keep out tides along the Welland to Crowland and up the Ouse as far as Upwell. The most impressive part of the Sea Bank is at Leverington, where 700m survive as an earthen rampart 3.5m wide at the base, 2.7m wide at the top, and 2.4m high, measured from the landward side (Fig 80).

There were sluices where main brooks ran through the Sea Bank. They functioned by being left open at low tide to remove freshwater from the embanked area and closed at high tide to keep out the sea. An interesting sluice at Newton, near Wisbech, representing a minor drain, was discovered in 1976. A length of 10m was

exposed and found to be constructed of three hollowed-out tree trunks, 1m in diameter and tapered at the ends to fit into each other. They were laid on sleeper beams, to prevent sinking, and further stabilised with uprights fixed to more beams on top of the trunks; the whole was covered with planks (Taylor 1978, 63–5).

The original core of Saxon drained land, protected by sea banks and fen banks, was extended, mainly by taking in fen, sometimes on a large scale. An example of an early seaward extension of the Sea Bank occurs at Bicker Haven, where a pre-Conquest date was suggested by Hallam (1965, 41–2) for a surrounding protective bank. At Quadring a second and later sea bank was raised 'parallel' to the first, 300m further into the Haven. Saxon pottery sherds were found east of the first bank, showing that it was out of use by the late Saxon period, and that the eastern, later bank was a (middle) Saxon intake.

Fenward extensions of arable land into the fen are more numerous and complex, representing piecemeal intakes with sometimes a succession of fen banks. The fen banks in Gosberton were aligned north–south and extended for several kilometres. Old Fendyke, extending from Pinchbeck as Chespool Fendike in Gosberton, is the earliest. Two more banks lying to the west show continuing reclamation during the Middle Ages, with Hammond Beck Bank, previously called New Fendyke, representing the final intake. Some of the fen banks link up to form a regional defence. In the wapentake of Elloe major fen banks ran 22km across several parishes, suggesting cooperative construction (Hallam 1965, 17; Williams 1982, 100).

The Cambridgeshire siltlands, being relatively small in area and under a single ownership, had a simpler reclamation history. An inner fen bank represents the initial stage and there is a single outer fen bank forming two geographically separate large intakes, probably of twelfth-century date (Hall 1981, 43). The largest intake was 2430ha.

Norfolk is complex, with a succession of fen banks encroaching on Marshland. These banks differ from those of the other two counties by the absence of a series of continuous barriers across the whole area. Only Walpole Castor Dike, from its alignment, could have extended over adjacent parishes, and the final bank edging the Smeeth is uniform in layout. Continuous fen banks would only be required if reclamations were synchronous. If new intakes were out of step, new land would have to be protected by barriers dividing parish from parish (Beloe 1895, 323).

In spite of the sea banks serious floods occurred, eventually destroying the village of South Clenchwarton. The village was mentioned in 1277 (*Cal Close Rolls Edward I*, **1** (1900), 414) and it had a chapel in 1334 (Owen 1984, 130); however, the manor was destroyed and of no value because of sea flooding in 1369 (*Cal Inq Post Mort*, **12** (1938), 400). In 1907 two coffin lids were found on the river bank, and a scatter of chalk building fragments was all that remained in 1984. The first church at West Lynn was washed away before 1271 and a new plot for St Peter's was found on a disused saltern mound (Blomefield 1808, viii, 535).

The system of flood control was very complex and when it broke down commissions of 'sewers' were set up to investigate the causes of flooding and recommend improvements. A detailed Cambridgeshire return of 1437 survives and gives much interesting topographical detail (Dugdale 1772, 317–28; Darby 1940, 177–94).

## Field systems

The whole area of medieval dryland appears to have been divided into strip fields. The strips were bounded by dikes and not ridged up; the widths commonly varied from 12 to 20m, although some of 50m wide were observed at Tydd St Giles, Eaudike Field. In the area of the older fields near the original vills, strip lengths were not great, but in the reclaimed areas massive fields were created with strips up to 1.5km in length. In most cases a 'field' consists of a single group of strips with the same orientation, corresponding to a 'furlong' in the Midland region except that the Fenland fields were much greater in area. In Lincolnshire the strips were called dylings (Hallam 1965, 152–4), and at Tydd St Giles, darlands; very few now survive as earthwork in pasture fields. Hall (forthcoming) illustrates darlands at Elm in 1977, now destroyed. The best surviving examples are at Quadring, Lincolnshire (Fig 90). The field systems of Cambridgeshire have been reconstructed from historical sources (Fig 91; Hall 1981), with detail for Elm (Hall 1978). Figure 92 shows the fields of Marshland, Norfolk.

*Fig 90 Aerial photograph of ditched field strips (called dylings or darlands) at Quadring, Lincolnshire (photo: T Lane)*

Large-scale fen reclamation took place in the parishes of Holbeach and Whaplode around 1229–36. Aswick Grange, in Little Postland, was founded by Crowland Abbey between 1236 and 1247 (Hallam 1965, 35). The reclamation diminished the common grazing land which was an essential part of the economy. '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...they have converted them into good and

fertile ploughland. Whence it is that they lack common of pasture more than most people' (Hallam 1965, 25). The results of these large intakes give rise to the long straight lines of the fields and droves in the southern Lincolnshire siltland, stretching up to 8km.

There is no evidence for a Midland type three-field system, (Hallam 1965, 220) and none should be expected, as there was always plenty of grazing in the fen. Distribution of land around the Ramsey manor at Popenhoe, Walsoken, shows that demesne land lay in a block. However, the land belonging to the medieval Chapel of St Mary in the Sea, Newton, was fairly well dispersed throughout the field system (Hall forthcoming). This may well have arisen because during piecemeal intake a portion was given to each tenant as the field was taken out of the fen.

Documents suggest that all the land as far as Smeeth Marsh, in Walton and Walsoken, had been enclosed by the second half of the thirteenth century. The fenward fields have a regular layout, and their names, Newland Field, Inham Field ('enclosure'), and New Field, reflect the gradual accretion of land.

The medieval economy of the siltland zone has been discussed by Darby (1971; 1974; 1983) and Hallam (1965). The value of the siltland fields was their arable potential; Hallam's (1965, 183–4) assessment of thirteenth-century surveys in Gosberton shows high percentages of siltland in arable use, and the whole


*Fig 91 Cambridgeshire silt fen fields reconstructed from eighteenth- and nineteenth-century plans held at Wisbech Museum; a pattern of small irregular fields occurs near the oldest settlements and large linear fields lie between the later wide droves (from Hall forthcoming)*


*Fig 92 Marshland, Norfolk, showing small fields near the settlements and the wide droves leading to the fen, Marshland Smeeth (from Silvester 1988a)*

region was prosperous. As well as the arable, stock rearing was of great importance on pasture land within reclamations, and there were summer grazing grounds on coastal marshes. In the sixteenth century the inhabitants of Lincolnshire siltlands considered the 'high-marsh' pasture to be as valuable as any grassland within the Sea Bank (Thirsk 1965, 15). At Tilney, sheep appear to have been of more importance than cattle in the Marshland economy (Jukes 1976, 236). The economy of Crowland estates has been studied by Page (1934).

Open-field bylaws relating to Pinchbeck Fen (Hallam 1963, 40–55) show how communal use of the fen was regulated to control the fen for those with rights of common in 1591. Regulations show that turf, reed, wood, rush, fish, fowl, and eggs, along with grazing, snaring, and hunting with dogs, were all sources of profit to the commoner. In return it was the duty of the commoner, in effect, to manage the landscape, by cutting bushes, cleansing dikes, and repairing seabanks.

Some of these matters are further discussed in chapter 10. It should not be assumed that all men conformed to the strictures of the monastic lords or parochial authorities; many parts of the fen remained wet and untamed, and here and there people survived and pros-

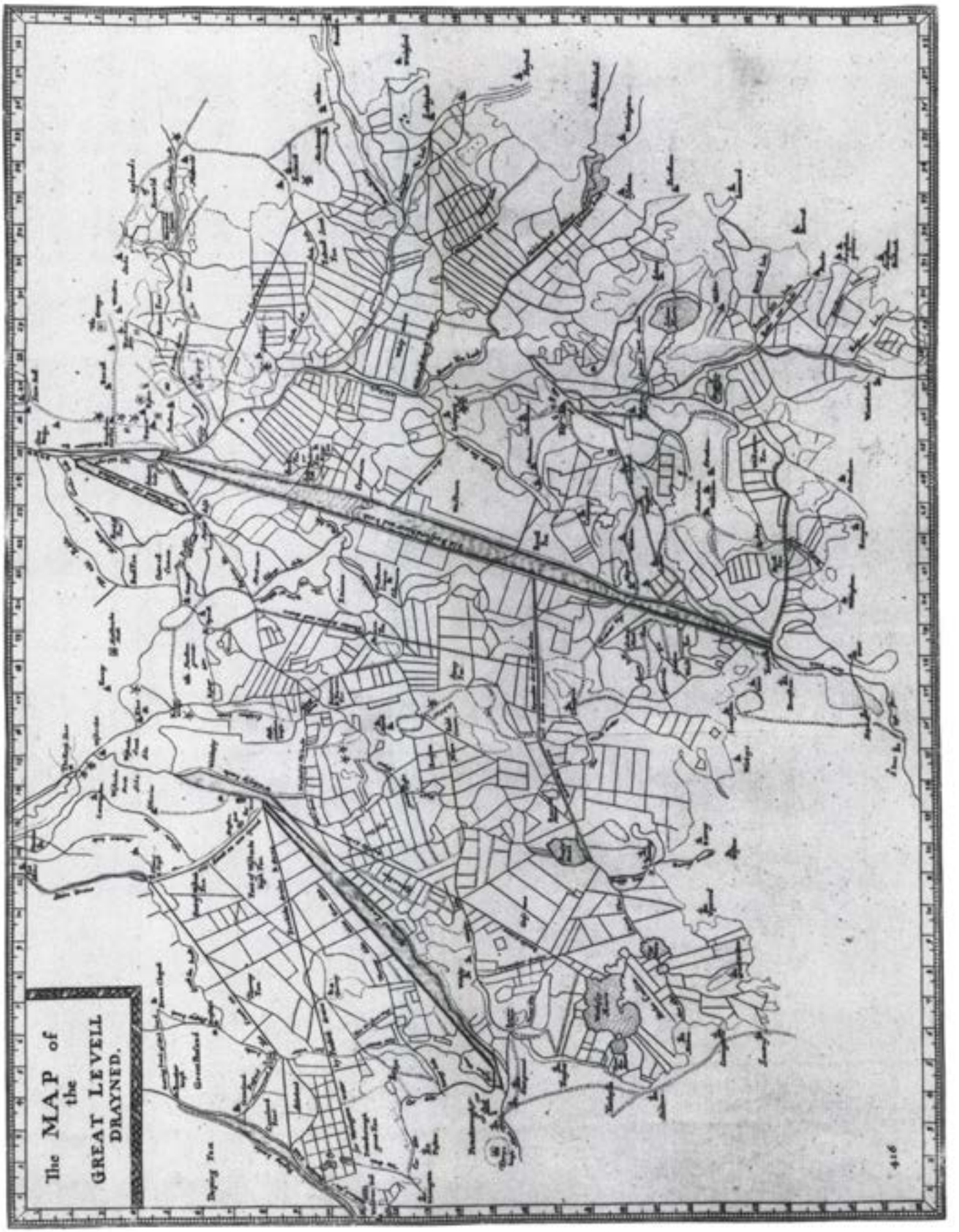



*Fig 93 Dugdale's 1772 map of the southern Fenland, showing 'the Great Levell Drayned'; north is at the top of the map, Peterborough at centre left, and Downham Market at top right*

pered, to their own satisfaction if to no one else's. Those who resisted control and domestication of any kind are described in chapter 10.

## Post-medieval developments

Full discussion of recent centuries is outside the scope of this book. The general history of the Fenland after 1500 is covered by the volumes of the *Victoria County History* for the south-western Fenland (Salzman 1938; 1948; Pugh 1967; Wright 1989.) The drainage history of the southern peat fen has been fully described by Darby (1983). Before the general seventeenth-century reclamation there were several drainage improvements, in particular when the River Nene (Morton's Leam) was cut in *c* 1490 from Peterborough to Guyhirne, falling into the siltland drain called the Great River of Wisbech. There is much detail recorded by local drainage boards on maps and in documents, and Lynam (1936) has published a list of printed maps for the south.

Large fields were created after drainage (those of the Huntingdonshire Fenland are marked on a map of *c* 1685; Page *et al* 1936, 182). Tithe maps of the mid nineteenth century show the tamed and cultivated Fenland, many of the larger fields having been subdivided.

Manea illustrates the wealth of data describing the landscape. The seventeenth-century peat Fenland was described in detail by Heyward's survey of 1636, made before drainage. For Manea there was part of Byall Fen, a total of 5185 acres, and at the north of the village lay the Dams, 689 acres. To the east was part of Estmore, a large tract of fen running from Coveney to Downham and Littleport, totalling 13,420 acres. There were various small enclosures around the village (Cambridge CRO, R59/31/3/2 and 3). Two parliamentary enclosure acts dealt with the island and old enclosure; one in 1804 dealt with Fodder Fen and the Cow Common (Cambridge CRO, l91/3–4), and another in 1834 enclosed open fields on the island. A survey of 1830 gives topographical names (Cambridge CRO, R57/19/17), and a tithe map of 1848 details owners, field names, acreages, and crops; almost the whole of the parish was arable by that date (CUL Maps, bb.53 (1).01.102). The area called Manea Fifties was one of the allotments, which in all totalled 95,000 acres, given to the Duke of Bedford in return for his capital investment in the Fenland reclamation (Cambridge CRO, 59/31/4/4 and 5). The Fifties is a block of 1000 acres divided into 20 fifty-acre plots.

There are a few late monuments of interest because of their rarity. Several Civil War military earthworks occur in the southern Fenland, the homeland of the Cromwell family. At Horsey Grange Farm, Stanground, a fort has ramparts 1.8m high in the form of an irregular pentagon. It was constructed to control the bridge over the Nene; a contemporary plan of *c* 1644 survives (Page *et al* 1932, 15–22; BL Stowe MSS 1025, 56). Other fort remains occur at Ely (Braham), March, Earith, and Upwell (Salzman 1948, 45; Taylor 1974, 34–58).

In conclusion, we have seen that the medieval Fenland was different from anything that had existed previously, with widespread settlement and field systems on the islands and silt. The whole region was gravity-drained by canalised channels that left large tracts of wetland in a wild state, especially in the south. The main rivers and drains, helped by additional canals, were used to form a network of trade routes. The drowned cargoes that have been found of building stone, whetstones, querns, pottery, etc were doubtless exchanged for fen products such as fish, sedges, and turves. On and near the coast salt was produced, continuing an industry already 2000 years old in Lincolnshire.

The intensity of use, maintained in the early days by monastic landlords, and the potential richness of newly-drained soils inevitably led to the complete reclamation of the Fenland in the seventeenth and eighteenth centuries, as soon as there was sufficient technology to guarantee a return on capital expended. Figure 93 shows the drained Fenland of 1665 and should be compared with Figure 3.

From the seventeenth century until the present day, drainage by river, canal, and lode was intensified through windmills and steam, diesel, and electric pumps. Farmers were encouraged to level land, to drain, to create large fields, and to plant specialised crops. The result is the Fenland of today, with most of the archaeological monuments damaged. This was the starting point for the Fenland Survey – to recover the evidence of the past before it had all perished.

# 10 Reflections

After eight years of Fenland Survey, a year of evaluation, and two years of excavation (mostly small-scale), it is time to reflect on the results, achievements, and problems. In this chapter we will not duplicate the summaries of the surveys provided in chapters 3–9; nor will we reiterate the history of drainage and decline of the Fenland (chapter 1). Instead we will provide some commentary on the overall scheme and some of its major achievements, and take note of one or two gaps and omissions that are now more clearly evident. We also try to convey something of the ethos of the original Fenlanders, those whose lives were bound up in the fabric of the land and whose traditions lived on until recently. Finally we glance at the successors to the Fenland Survey – an evaluation phase and a management project which will test the resolve of all archaeologists committed to the ideal of preservation of part of the ancient Fenland.

Figure 94 sets out a few of the events, some dramatic, that have taken place in the Fenland, and links (by brackets) the earliest periods that archaeology has tried to document with the sources of evidence used in this book.

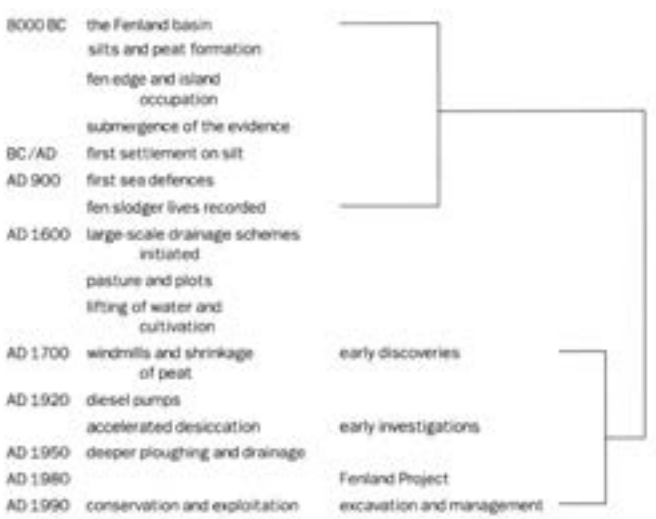



*Fig 94 Chart to show (upper bracket) the time-range and some events recorded by (lower bracket) the early discoveries and the Fenland Project*

## The Fenland Project

After 11 years of work, it is now possible to stand back and view the results from a distant and more appropriate position. The day-to-day work of the survey, the compilation of data field by field, made it difficult to see the broad themes emerge and develop as time passed. In essence, it was sometimes difficult to see the wood for the trees. To pursue this analogy a little further, let us imagine that the ancient history of the Fenland is inscribed on the Fenland floor, and shaded and obscured almost totally by a primeval forest rooted in that floor. Here and there was an occasional glimmer of light penetrating through the dense foliage. As the survey got under way, the effect was that a few more shafts of light got through; with time, small clearings appeared and eliminated some of the darker areas of ignorance. In places the survey removed whole stands of trees and exposed entirely new areas of information. Parts of the forest remain, of course, but today the broad sweep of the ancient history of the Fenland lies open to us to read. Let us pick out a few of the newly-illuminated areas.

1 We note the first traces of human presence in the Fenland, at times when the fen plain existed as a dryland. We can also see a broad distribution of lithic scatters of the earlier post-glacial period, the first major surviving evidence of human presence in the Fenland. Although many sites are now detroyed by erosion and others sealed by later deposits, some will continue to be exposed by peat wastage.
2 We can show that the earliest Neolithic sites lie along the fen edge, and that foraging for wild resources and pasturing of animals were the principal pursuits, with some well-defined clearances of woodland and small cultivation plots. In certain places, we can identify communal monuments reflecting a wider social organisation.
3 We recognise the existence of many hundreds of sites of the later prehistoric period, many of late Neolithic/early Bronze Age date, positioned on the fen edge; prior to the survey only a few were known. They mark small, probably temporary/seasonal occupations where the natural resources of fen edge environments could be most easily exploited. Other sites suggest permanent interest and activity in areas where Fenland conditions were particularly suitable for adoption and management. Some of these sites can be preserved, others investigated.
4 We identify complete Bronze Age barrow fields in the south-western Fenland in particular. These monuments were constructed on dryland adjacent to the contemporary fen, and were subsequently submerged by encroaching peats. They represent prehistoric burials entirely undisturbed by any human activity, other than through the wastage of peat soils in recent years. They are prime candidates for preservation.
5 We can now discern a major Iron Age saltmaking industry in the Lincolnshire Fenland, an activity known before the survey only along the fen edge. This revelation has profound implications for the history of settlement of the Fenland and links well with the evidence for medieval occupation (see below). These sites deserve careful maintenance.
6 We can see a variety of Iron Age settlements on the islands of the Cambridgeshire fens. Before the survey, only one site was known, and that undated.

This is another powerful indicator of the persistence of prehistoric occupation through many centuries, presumably caused by the perceived value of the wetland life. Some of these sites deserve full investigation.

7 We now realise that the Romano-British saltmaking industry, already known from Lincolnshire, existed in the Cambridgeshire and Norfolk fens, and that the Fenland Roman economic base was founded on a well-organised system of canals as well as roads. Stonea Grange, discovered during normal field survey, is an example of an unexpected monument, to set alongside the abundance of more mundane industrial and occupational sites in the fens. Full investigations at Stonea point to a highly-structured organisation of the area.

8 We can document Saxon settlement in Lincolnshire on and within Fenland environments. This has altered our previous understanding of the attraction, or lack of it, of the fens at this period, and opened up new possibilities for research on Saxon settlements all over the Fenland. Some of these sites should be preserved.

9 We have been able to demonstrate that the Sea Bank is of late Saxon date, and we have acquired a set of firm dates for episodes in the reclamation of the fens. These results dispose of decades of controversy and indicate that the settlement of the Fenland and its reclamation began before the Conquest and continued well into the twelfth century. The major utilisation of the siltlands can now be seen as initiated in the medieval period with all of the siltlands widely exploited and domesticated at an unexpectedly early date.

10 We were able to adopt a strategy for the classification, dating and mapping of the silts, peats, and landscapes of the Fenland. There has emerged a fundamental revision of the classic sequence as originally perceived by the old Fenland Research Committee. Without this new work, no real understanding of ancient Fenland landscapes is possible.

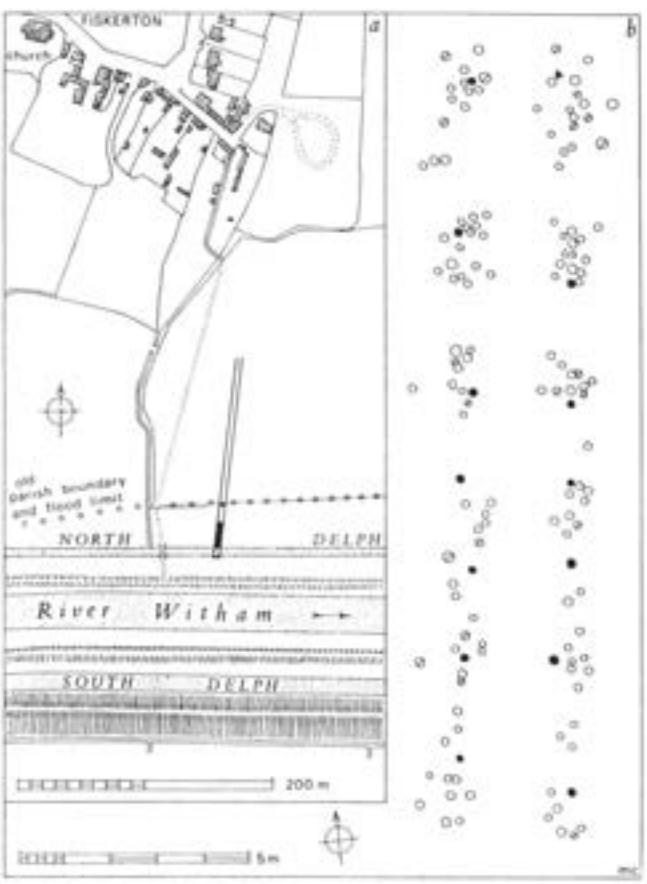



*Fig 95 Location of the timber causeway at Fiskerton and plan of the uprights; the posts were felled between 456 and 375 BC, with only a few younger; the paired posts shown in black were felled in 406 BC (based on Field 1986 and Hillam 1992)*

The achievement of the Fenland Project lies not only in these fundamental and profound additions and alterations to knowledge but also, and essentially, in the efficient compilation of a bulk of data obtained under good conditions by experienced workers from a huge area. The data bank thus assembled is suitable for more sophisticated research in the future.

It might be worth mentioning here that all this information could not have been accumulated without a great measure of dedication on the part of the Field Officers, and of commitment by central authorities to a work programme that was mostly carried out by lone surveyors walking the fields, liaising with farmers and other land users, recording and identifying sites, mapping soils, and assessing the significance of discoveries. They were guided by a Fenland Project committee, and they were exposed to annual gatherings where results were presented to public meetings, and to appraisal by the archaeological community through Annual Reports and more formal conferences. The methodology adopted was subject to review and adaptation by Field Officer meetings, and the three home bases (in Cambridge, Sleaford, and Dereham) provided storage and record facilities as well as local administration. In all of this the driving force was the Fenland Project committee, but the fuel for the endeavours of the Field Officers was the reliable supply of funds from central authorities.

## Unfinished business

It will be apparent to readers of the preceding chapters that the archaeological record of the Fenland is incomplete. Survey has turned up many hundreds of sites, but large areas of the ancient landscapes, stratified and inter-fingering, are and will remain submerged by subsequent layers of silt or peat. Many early and variously intact sites and monuments are assumed to lie deep in the fen 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 that overwhelmed them. Many of them are destined to remain interred beneath deep, semi-liquid silts, protected for posterity, safe from the current prospects of decay, but beyond the scope of

archaeological enquiry. These sites are not a short-term problem, but 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.

One way by which deeply-buried sites may be revealed is through ditch, dike, and channel cutting, or canal- and river-bank recutting. Sites lying beside contemporary but now buried and extinct rivers and streams may have been waterlogged soon after abandonment, and some may still possess their organic elements. Most of the deeply buried sites, however, will have been dryland occupations and as such the conditions of preservation will be as for most dryland sites – dried-out. Small, low, sand islands well out in the basin are places where early settlement or occupation are likely to have taken place. These were the islands 'which God of purpose raised...to be habitations for his servants, who chose to dwell there' (Dugdale 1772). They were soon submerged, sealed by flooding deposits, and will be mostly undisturbed by modern cultivation and therefore in excellent condition for archaeological investigation and potential preservation. Other Fenland sites which are less deeply submerged, and are probably therefore of later prehistoric or early historic times, may also have survived well, and the repeated waterlogging of wide areas may have created conditions for organic survival. We do not know how many of these sites, intact and protected from deterioration, are likely to emerge for our observation in due course. A combination of dike or ditch survey and a carefully constructed research design might identify or predict certain areas of high potential. One such dike survey has already yielded results of great significance (French and Pryor 1993).

In chapter 1 we indicated the extent of the Fenland Survey. Although perhaps 60% of the area was walked, a sizeable amount remains unsearched. The major gap is in Lincolnshire, where 70% of the Fenland remains to be studied along the Survey's lines. All of the distribution of material of all periods must be looked at with this reservation in mind.

A large gap in the Fenland record is the Witham valley. This broad valley forms a long finger penetrating well inland from the Fenland basin proper to Lincoln. The valley sediments rise to only 2.5m OD, and consist of brackish silts once overlain by peat, most of which in the southern end of the valley is lost by wastage. The river itself flows along the eastern side of the valley, but an ancient central channel, now abandoned, is assumed to represent the original course. Yet the modern eastern channel has yielded an extraordinary number of finds (White 1979), probably because it cuts through rich buried sites perhaps linked by trackways.

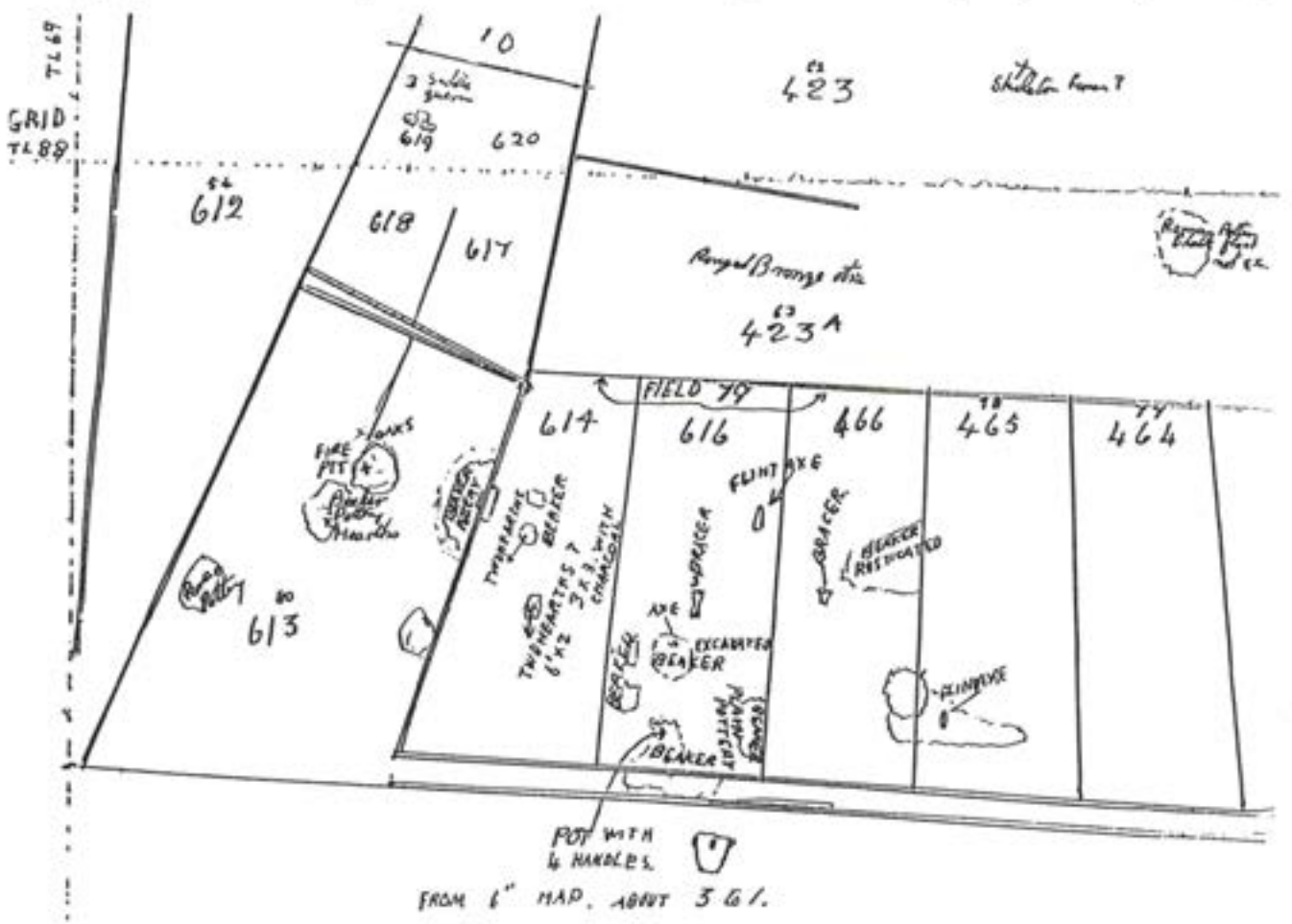



*Fig 96 Sketch map of some fields in Hockwold, Norfolk, by W F Curtis in c 1967, to show the Neolithic and Bronze Age artefacts recovered as pasture was broken (from Healy forthcoming)*

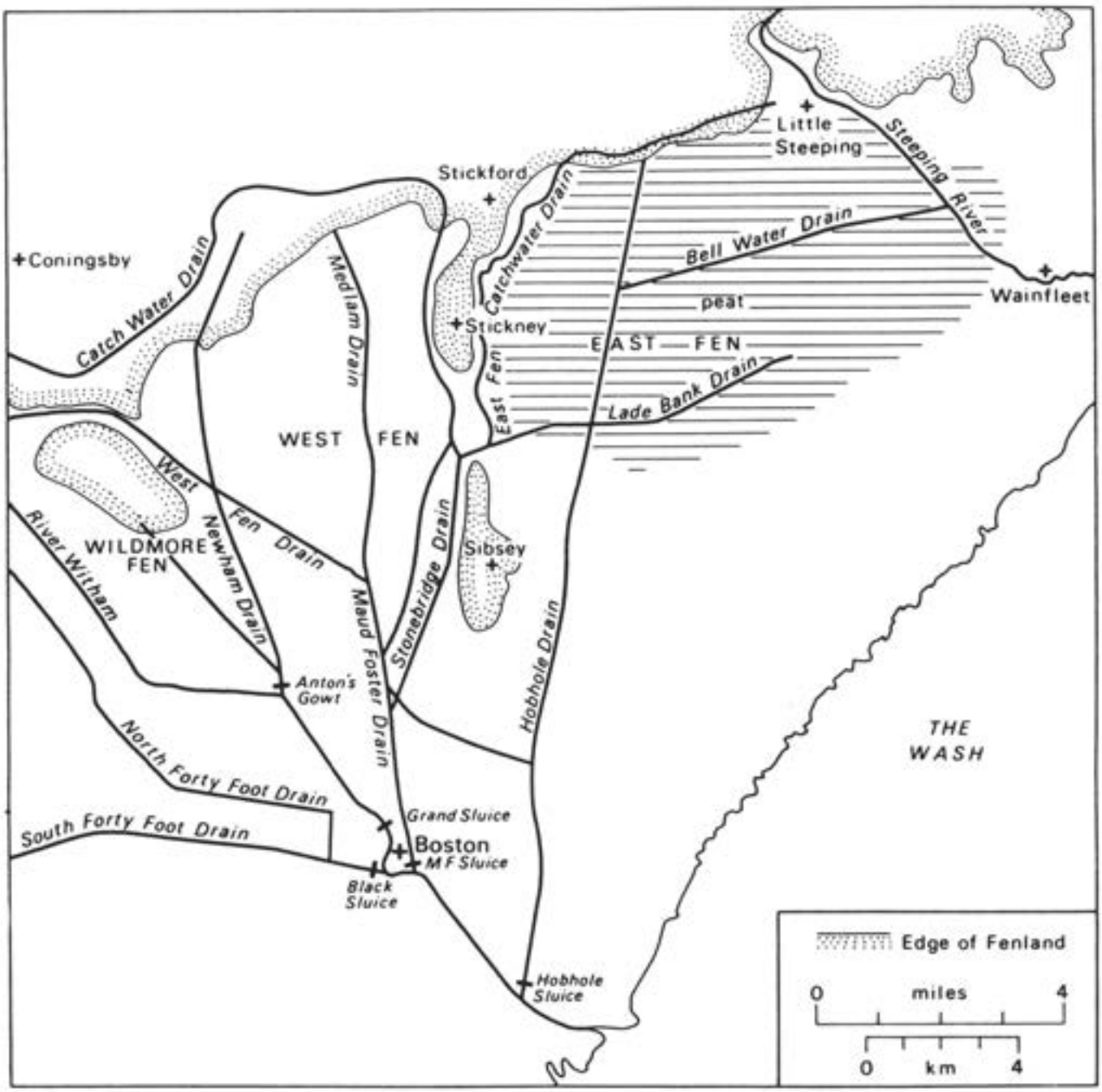



*Fig 97 The fens at Stickney in the north Lincolnshire Fenland; see Figs 25 and 44 for the survey results (based on Wheeler 1868 and Darby 1986)*

Among the finds are the Witham shield (Jope 1987), the Tattershall Ferry carnyx (Piggott 1959), and numerous Iron Age swords, among which are those found by the timber causeway or dock at Fiskerton (Fig 95) (Field 1986). It is probable that these rich finds, presumably votive offerings, were put both in marsh pools and in river waters. A number of Bronze Age barrow cemeteries, at Anwick, Barlings, and Walcott, include some mounds only recently exposed by peat wastage, although others have already been ploughed flat (Everson 1983; Everson and Hayes 1984; Chowne and Healy 1983). Upstream, material from an occupation of the early first millennium BC was recovered at Washingborough (Coles *et al* 1979) and some logboats are known from the valley (May 1976; McGrail 1978). All in all, the Witham valley holds enough potential to warrant an intensive survey in advance of its complete loss of peat and the desiccation of archaeological deposits.

Perversely, the same course of action could be proposed for major parts of the surveyed Fenland. In Cambridgeshire, some of the peatlands were surveyed as long ago as 1976, and areas of land searched up to 1982 or beyond would now benefit from and repay another fieldwalking operation. In the intervening time, 10–15 years, peat wastage has continued and new exposures of old islands and edges are now revealed. We can demonstrate this concept by going back even further into the archaeological past.

In the 1950s and 1960s a large number of pasture fields in the Fenland were brought into cultivation.

Many sites were exposed for the first time and only a few were recorded. Among the collectors who scooped up vast arrays of artefacts was W F Curtis of Feltwell. His first collecting expedition was recorded: 'Greens ploughed up. Old pottery, Beaker, Rusticated. Bones, bone needles, awls, stone amulets, scrapers, knives, axe, adze, bracer, one nearly complete pot unidentified.' His records over the years show the richness of the sites he explored as more and more greens were transferred to arable, and as deeper ploughing turned up more and more material (Fig 96). His sketch maps of groups of fields provide an invaluable record of the early Bronze Age sites that now no longer exist (Healy forthcoming), and provide a much needed supplement to and illumination of the more spartan and sparse results of the Fenland Survey.

It is worth noting that drainage schemes in some areas were applied at different intensities and at different times, with predictably variable results. In north Lincolnshire, for example, a small and often overlooked portion of the Fenland lies along the Stickney ridge (Fig 97). This boulder clay moraine sticks out into the fen and its present land use is reflected in a pattern of fields unlike those of the Fenland prairies. On each side of the ridge were fens, West and East; West Fen was incorporated early into farming practice, but East Fen remained untamed for longer. Peat was extracted in various patches, leaving a series of Deepes or shallow lakes; these are now gone but the soils of East Fen are organic-rich and dark, in contrast to the saltmarsh-based soils of West Fen. The condition of ancient settlement traces in these two areas should be different, and it might be interesting to test the theory. Both fens were among the last substantial tracts of the northern area to be submitted to drainage and enclosure; an early attempt, in 1631–4, was technically successful but socially unacceptable to the local people who forcibly repossessed the land and permitted it to revert to a condition more suitable to the fen slodger than to the farmer (Darby 1956, 46). We will now digress to comment on these original Fenlanders.

## The fen slodger

'In all these things the district is most productive.' With these words Hugo Candidus (1150) explained the existence of the fen slodgers, although he, being a monk, certainly did not acknowledge their right to live without his ministrations. Vast areas of the original Fenland were once totally untamed marsh and fen. Deep pools and sheets of water, copses of alder and willow, streams and rivers, reed beds, and stands of rush and sedge, all abounded with wildlife; and all were exposed to the demands of those who chose the wild life (Fig 98). The origin of the term 'fen slodger' is unknown; it was in use by 1856 (Thompson 1856).

The wealth of the Fenland was documented in early historic times. The records speak of the yields offered and acquired by the monasteries; one manor attached to Ramsey gave 60 thousand eels every year. Of Ramsey mere itself, 'there are frequently taken, with several kinds of nets, as well as with baited hooks, and other fishing instruments, pike of extraordinary great size' (*Chronicon Abbatiae Ramesiensis*). The many smaller meres, less controlled, were open to those inhabitants outside the establishment, and provided ample fish for the slodger and his family; eels could also be taken from isolated parts of the streams. Birds too were abundant as Thomas of Ely explained in the twelfth century:

*Fig 98 Fen slodgers, early nineteenth century AD (from Wheeler 1868)*

> There are numberless Geese, Fiscedulae (?teal), Coots, Dabchicks, Watercrows, Herons and Ducks, of which the number is indeed great. At mid-winter, or when the birds moult their quills, I have seen them caught by the hundred, and even by the three hundreds, more or less. Sometimes thay are taken in nets and snares as well as by bird-lime. (*Liber Eliensis*)

The records also speak of those who poached birds from controlled meres, and eggs that belonged to estates. The peat fen produced reeds, rushes, and sedge as well as wood of willow and alder, and dried parts could be cut for burning and building turf. Monastic records tell of the transgressions of those fenmen who cut and transported the lesch (probably sedge or rush) for their own use or private sale; no one was allowed to 'have or take anything in the fen save by the favour of the lord' (*Littleport Rolls*), but the slodgers could and did. They could also gather wild plant foods, augmented by the occasional foray into estates' garden plots and orchards, and they could trap and hunt the otter, beaver, deer, and boar, much to the lords' displeasure.

Of slodger dwellings we have little account, but a more recent description of a Fenland home may give some impression of the likely structures:

> a lonely fenman's shack where not a wall, a floor, a door, a window but has sagged or sideslipped out of true. The brick floors...surge up and down. The front or the hind legs of the chairs will have been cut short to make them fit the floor, and the table too, unless it has bricks set underfoot.... Only the great chimney that the cottage leans upon looks as if it might last a few years more...such is the way of peat. (Ennion 1951)

Such a house would be a palace to a slodger. Of course, such lives paid a price:

> Although their condition was very miserable, they enjoyed a sort of wild liberty amid the watery wastes, which they were not disposed to give up. Though they might alternatively burn and shiver with ague, and become prematurely bowed and twisted with rheumatism, still the fen was...their only source of subsistence, precarious though it might be. (Wheeler 1896)

This disparaging description refers to the slodgers and to other fen folk who were more legitimately engaged in Fenland pursuits, but whose condition was equally precarious. Liberty was to all of these a prime concern, as was isolation. The latter must have been evident to all those who had come before, in the prehistoric period. If we envisage a number of single families or small communities scattered in a logical way along the fen edge and on low islands and ridges some way out in the basin, linked by dryland and by streams, the onset of floodwaters and the sporadic waterlogging of the whole landscape would have been catastrophic. The division of the land into compartments, separated from one another by bogland of whatever character, was one kind of isolation, but any wider and less-foreseen deterioration would have disrupted the patterns of existence, and hindered contacts both social and economic. In historic times, and perhaps earlier, community efforts were made to forestall or delay the deterioration of contact, in the building of roads, banks, and canals, most of which survived for only a limited time.

*Fig 99 A drainage mill, wheel, and sluice (from Wheeler 1868)*

For whatever, and probably every, reason, Fenlanders tended to develop a fierce independence, a suspicion of outsiders, and therefore an uncommunicative manner. Godwin (1978) often spoke of the modern Fenman's reticence.

## Fenland viewpoints

Godwin, who was instrumental in establishing environmental research in the Fenland, was a fine fieldworker, eager to jump into the dark peaty trenches, and happy to work under most kinds of Fenland weather. Archaeologists often write complainingly about the conditions under which they have to work – in cold, damp, or excessive heat (we might say the same about those academics who labour in university rooms). In the field, a hot sunny day on the chalk may not be to everyone's liking, nor walking the upland moors on a sticky, midge-filled day. But what could be better than a quiet cool day in the fens, with soils just damp enough to show colours and fields just washed enough to reveal shining flints in the ploughsoil? The problem is that there are few such days, or so it seems after years of field survey in the winter months, between crops or when fields have been released for examination. Of course there are episodes when conditions are pleasant, but these are submerged in the memory of bitter days, with winds blowing seemingly straight across from Siberia or Iceland, and rain or snow sleeting horizontally. When the sun brings warmth to excavations, it often dries out the soils so severely that all discolouration is lost and the baked ground defies the trowel. The survey officers, however, rarely encountered such warmth as their seasons in the field were restricted to the winter months.

Nonetheless, the views across the flats were always extensive and varied, and always a surprise to the occasional visitor who expected a featureless, bland landscape. There can be no better place to observe the 'vast hemispherical skyscape' (Godwin 1978, 8) or to watch the clouds rolling up, the oblique shading of rain gradually obliterating the light. When the rain passes, the views, particularly in the late autumn or winter, can be as clear as anyone could imagine.

For the Fenlanders, those who have lived all their lives in this landscape, there is no other place like it and often no other desired. When Godwin was a young man, working in the fens, he encountered a Fenlander and remarked on the flatness of the land. He was swiftly criticised: 'Any fool can appreciate mountain scenery. It takes a man of discernment to appreciate the fens' (Godwin 1978). Maybe so, but times have changed for some. A more modern encounter between one of the Fenland Survey officers and a local resulted in a different response to the same comment, which was phrased along the lines of: 'Are you going away on your holi-

days this year?' The Fenman's reply was, 'We always go to Switzerland.'

## Archaeological evaluations

'The fens are now in a moment of balancing their fate' (Young 1805). For over 200 years various scientists, engineers, agriculturists, and historians have foretold the dramatic changes that would overturn the Fenland and its ways of life.

As drainage took effect (Fig 99), and land was reclaimed from the water, new economic and social practices were introduced or evolved. The medieval intercommoning of animals evolved into more structured systems, closer contact within the system, less understanding outside it. Against this trend was the development of transportation routes – canals, banks, roads. The dozen or so centres of intercommoning, Marshland, Ramsey, Deeping, and the others, had the chance to emerge as powerful market forces, and while some did, some did not. The continuing effects of land shrinkage were a constant pressure on all who worked the soil or pasture. By 1877 the clays underlying the peat in much of the southern Fenland were coming close to the surface. 'The glorious times (of 1800) when they could run a pole ten feet into the moor without touching clay' were gone; the clay had 'risen' and the peat was 'wearing out' (Skertchly 1877). Claymarl began to be extracted by digging narrow trenches, spreading the clay widely on both sides and allowing it to settle into the peat soil. Agriculture was the main concern of the Fenlander, and the slodgers were reduced in numbers, pressed back into smaller areas, and losing their livelihood. By 1854 the university officials at Cambridge were happier now that the gentlemen undergraduates, and maybe some of the staff too, were not able to reach the wild fens within the hours of unsupervised activity: 'these incentives to idleness no longer exist' (Godwin 1978). The vicarage at Prickwillow near Ely, pile-built in 1878 with two steps up to the front door, had more and more steps added as the ground around, and beneath, sank; by 1980 it had 11 steps.

When Godwin wrote his overview of the Fenland in 1978, he was optimistic that the problems of wastage and environmental change could be overcome by expressions of public concern. Since then the full effects of agricultural subsidies have been imposed on much of the Fenland, and many landscapes have been lowered, exposing the traces of ancient settlements. The Fenland surveys have been successful in discovering and identifying numerous sites, in recognising new kinds of evidence, and in documenting episodes of human activity considered previously to be absent. These are positive contributions to knowledge, and we have tried in this report to set them out fairly. We have also given an opinion and an impression of the Fenland in its evolution, from emergence as a dry basin to its infilling through time with sequences and series of silts and peats. The records of early activities and settlement in the Fenland provide us with glimpses, probably biased, of ancient ways of life, of the isolation of people, and of their dogged determination, and these may reflect a little upon those lives represented only by the scatters and spreads of debris that archaeologists collect and classify. What is lacking from our account here is not just the detail of the rubbish of the past, as that is described elsewhere in the primary monographs, but also the touch, the feel, of those numberless people who settled, worked, struggled, enjoyed life, and died without elaborate ceremony or fuss. Nonetheless, we hope that the opinions and verbal pictures of chapter 1 and this concluding view will help create an impression of the Fenland in its wild and partially tamed conditions, and of the small lives of the unnamed people who used the Fenland for 8000 years and more. Their use and acceptance of the waters, and their responses to its urgings, provide a contrast with modern attitudes.

It is apparent to all who follow the course of modern archaeology that the recognition and recording of ancient sites, and the presentation of interpretive overviews, are not the end of the enquiry. In the Fenland, known to be deteriorating as an archaeological landscape, one of the aims of the survey was to identify those sites which were of high importance and for which some thought might be given towards preservation. Other sites might also be important for the amount and character of information they contain but could not conceivably be preserved, and therefore might be excavated – preservation by record.

In 1989, a new project called the Fenland Evaluation Project was established with a specific aim to build out from the completed Fenland Survey. The Evaluation Project took as its database the 2000+ sites identified by the survey, and selected from this total 148 sites and landscapes for particular study. These sites were judged to be the most, or among the most, important archaeological sites in the Fenland insofar as the survey had characterised them adequately. The sites selected covered a wide range of site diversity, high potential, fragility, rarity, multi-period complexity, and group association. Some were selected as representative of a group of sites, within which even better-preserved sites existed; those to be examined might establish the character and quality of the untouched sites, and help make decisions about preservation. The list contained sites and areas from the Mesolithic to the medieval period, and included settlements, field systems and earthworks, canals and industrial sites, burial monuments, and religious establishments. Some were potentially or certainly wet, in that waterlogged evidence might be associated with them, and some sites were multi-period or complex. For monument types where many examples exist, only a small sample was listed, which we hope is representative. All the sites were considered to be of such national or regional importance that any severe damage would constitute a loss and seriously diminish the record of past human activity.

Each of the 148 sites was assessed again, in more detail – by further fieldwork, collection of artefacts,

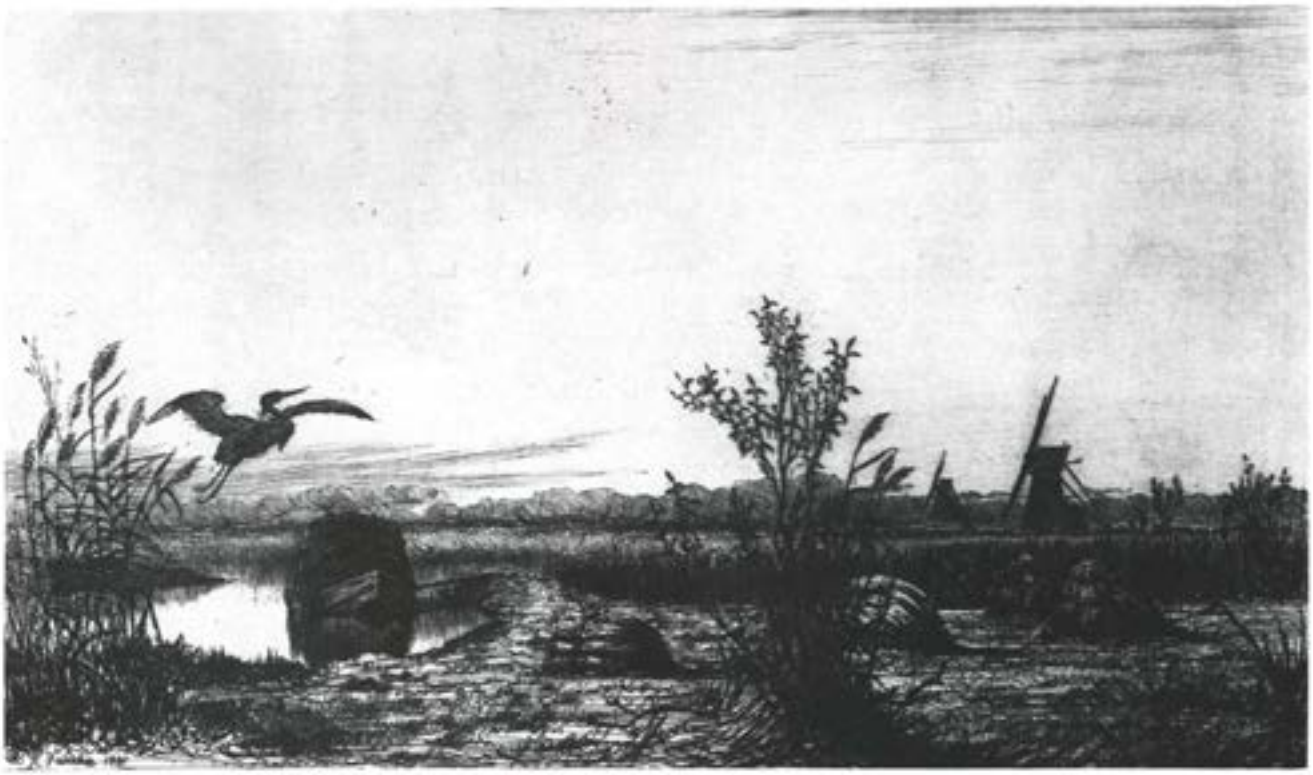


*Fig 100 Wicken Fen, 1881; a view encompassing many elements of the ancient fen, and evocative of its former tranquillity*

sampling via coring or sondage, investigation by geophysical survey, and analysis of any aerial photographic evidence – and dossiers were produced for each site. These dossiers presented English Heritage with the archaeological information needed for decisions to be taken on the course of action. There were several possibilities:

1 to take steps to arrest the processes of decay of the site
2 to encourage research investigations and/or to develop interpretive facilities for the public
3 to record by excavation, and preserve by record, where physical preservation was not possible

From this point, a new project took over – the Fenland Management Project. It was designed to explore all the possibilities for the evaluated sites, from total excavation to total preservation, and most of the stages between. The results of some of the investigations are noted in this book, where small- or large-scale excavations provided extra detail and refined the results of the original survey. Some sites have been identified for immediate protection by scheduling, some by amendment of land use patterns, and some are being monitored to assess the rate of desiccation or other loss so that steps can be taken to arrest damage. Some sites have been fully excavated as no human mechanism could preserve them from eventual disintegration. At the moment of writing (mid 1993), much has been done and much remains to be done. The learning process moves along, mistakes are being more easily avoided, and new ideas and technologies are being advanced.

By the year AD 2000 we may be able to assess the results of efforts to save a part of the ancient history of the Fenland (Fig 100), and to reflect on the pictures that have emerged from the surveys and other investigations. Do these pictures support William of Malmesbury's view, that the Fenland 'represents a very Paradise: for that in pleasure and delight it resembleth Heaven itself' (1100)? Or the Earl of Malmesbury's opinion, 'As to the country about here, 'tis the most disagreeable I ever saw' (1830)? There are many different viewpoints, but we, as archaeologists, can hardly do better than agree with Cobbett (1870): the Fenland has 'more good things than man could have the conscience to ask of God'.

# Abbreviations and Bibliography

## Abbreviations

| | |
|---|---|
| BAR | British Archaeological Reports |
| BL | British Library |
| CBA | Council for British Archaeology |
| CRO | County Record Office |
| CUMAE | Cambridge University Museum of Archaeology and Anthropology (formerly 'Ethnology') |
| CUL | Cambridge University Library |
| EAA | *East Anglian Archaeology* |
| LAO | Lincolnshire Archives Office |
| PRO | Public Record Office |

## Bibliography


Adam, P, 1981 The vegetation of British saltmarshes, *New Phytol*, **88**, 143–96

Addyman, P V, 1964 A Dark Age settlement at Maxey, Northants, *Medieval Archaeol*, **8**, 20–71

Addyman, P V, and Whitwell, J B, 1970 Some middle Saxon pottery types in Lincolnshire, *Antiq J*, **50**, 96–102

Aitchison, T, Leese, M, Otlet, R L, Ottaway, B, Pazdur, M, van der Plicht, J, Reimer, P, Scott, M A, Stuiver, M, Warner, R, and Weninger, B, 1989 A comparison of methods used for the calibration of radiocarbon ages, *Proc 13th Internat Radiocarbon Conf, Dubrovnik, Yugoslavia, 1988*

Albert, W, 1849 A note in *Archaeol J*, **6**, 60

Allen, D F, 1967 Iron currency bars in Britain, *Proc Prehist Soc*, **33**, 307–35

—, 1970 The coins of the Iceni, *Britannia*, **1**, 1–33

Anon, 1685 *History or narrative of the Great Level of the Fenns called Bedford Level*, London

Anon, *c* 1770 *The Inundation, or The Life of a Fen-Man*, King's Lynn

Ashbee, P, 1960 *The Bronze Age round barrow in Britain*, London

Babington, C C, 1883 *Ancient Cambridgeshire*, Cambridge

Baker, F T, 1960 The Iron Age salt industry in Lincolnshire, *Lincolnshire Archit Archaeol Soc Rep Pap*, **8**, 26–34

—, 1975 Salt making sites on the Lincolnshire coast before the Romans, in de Brisay and Evans 1975, 31–2

Bamford, H, 1982 *Beaker domestic sites in the fen edge and East Anglia*, EAA, **16**, Norwich

Barfield, L H, and Hodder, M A, 1980 The excavation of two burnt mounds in South Birmingham: an interim report, *West Midlands Archaeol*, **23**, 14–26

Barley, M W, 1936 Lincolnshire rivers in the Middle Ages, *Lincolnshire Archit Archaeol Soc Rep Pap*, ns, **1**, 1–22

Barrett, J, and Bradley, R (eds), 1980 *The British later Bronze Age*, BAR, **83**, Oxford

Barringer, C (ed), 1984 *Aspects of East Anglian prehistory*, Norwich

Bede *Ecclesiastical history*, **4**

Beloe, E M, 1893 On the great Fen Road and its path to the sea, *Comm Cambridge Antiq Soc*, **7**, 112–30

—, 1895 Freebridge Marshland Hundred and the making of Lynn, *Norfolk Archaeol*, **12**, 311–34

Bennema, J, Geuze, E C W A, Smits, H, and Wiggers, A J, 1954 Soil compaction in relation to Quaternary movements of sea level and subsidence of the land, especially in the Netherlands, *Geologie en Mijnbouw*, **16**, 173–8

Bennett, K D, 1983 Devensian late-glacial and Flandrian vegetational history at Hockham Mere, Norfolk, England, **1**, Pollen percentages and concentrations, *New Phytol*, **95**, 457–87

Berendsen, H J A, 1984 Problems of lithostratigraphic classification of Holocene deposits in the perimarine area of the Netherlands, *Geologie en Mijnbouw*, **63**, 351–4

Beresford, M W, and St Joseph, J K S, 1979 *Medieval England: an aerial survey*, 2 edn, Cambridge

Bestwick, J D, 1975 Romano-British inland salting at Middlewich (Salinae) Cheshire, in de Brisay and Evans 1975, 66–70

Birkbeck, J D, 1970 *History of Bourne*, Bourne

—, 1976 *History of Bourne*, 2 edn, Bourne

Birks, H J B, and Birks, H H, 1980 *Quaternary palaeoecology*, London

Blake, E O, 1962 *Liber Eliensis*, Roy Hist Soc, London

Blomefield, F, 1805 *An essay towards a topographical history of the County of Norfolk*, **ii**

—, 1808 *An essay towards a topographical history of the County of Norfolk*, ***viii–ix***

Bloom, A L, 1964 Peat accumulation and compaction in a Connecticut coastal marsh, *J Sediment Petrology*, **34**, 599–603

Bowen, H C, 1961 *Ancient fields*, Wakefield

Bradford, J S P, 1957 *Ancient landscapes*, London

Bradley, R, 1975 Salt and settlement in the Hampshire Sussex borderland, in de Brisay and Evans 1975, 20–5

—, 1987 Flint technology and the character of prehistoric settlements, in *Lithic analysis and later British prehistory* (eds A Brown and M Edmonds), BAR, **167**, Oxford

—, 1990 *The passage of arms*, Cambridge

—, 1993 *Altering the earth*, Soc Antiq Scot Monog, **8**, Edinburgh

Bradley, R, and Chowne, P, 1993 *Excavations at Redgate Hill, Hunstanton, Norfolk, and at Tattershall Thorpe, Lincolnshire*, EAA, **57**, Norwich

Bradley, R, and Gordon, K, 1988 Human skulls from the river Thames, their dating and significance, *Antiquity*, **62**, 503–9

Briscoe, G, 1948 Archaeological notes, *Proc Cambridge Antiq Soc*, **41**, 78

—, 1949 Combined Beaker and Iron Age sites at Lakenheath, *Proc Cambridge Antiq Soc*, **42**, 92–111

—, 1953 A Romano-British site at Lakenheath, *Proc Suffolk Inst Archaeol*, **26**, pt2, 69–84

—, 1957 Swale's tumulus: a combined Neolithic A and Bronze Age barrow at Worlington, Suffolk, *Proc Cambridge Antiq Soc*, **50**, 101–12

—, 1961 Archaeological notes, *Proc Cambridge Antiq Soc*, **55**, 66–7

—, 1963–4 Icenian coin finds in Lakenheath, Suffolk, *Proc Cambridge Antiq Soc*, **56–7**, 123–4

Briscoe, T, 1979 Anglo-Saxon finds from Lakenheath and their place in the Lark Valley context, *Proc Suffolk Inst Archaeol*, **34**(3), 161–9

Britton, D, 1960 The Isleham hoard, Cambridgeshire, *Antiquity*, **34**, 279–82

Browne, D M, 1978 *The Victoria County History of Cambridgeshire and the Isle of Ely*, **7**, London

Brown, A E, and Taylor, C C, 1980 Cambridgeshire earthwork surveys, **4**, *Proc Cambridge Antiq Soc*, **70**, 113–25

Brown, M A, and Blin-Stoyle, A E, 1959 A sample analysis of British middle and late Bronze Age material using optical spectroscopy, *Proc Prehist Soc*, **25**, 188–208

Buckley, V, 1990 *Burnt offerings. International contributions to burnt mound archaeology*, Dublin

Burgess, C B, 1968 The later Bronze Age in the British Isles and north-western France, *Archaeol J*, **125**, 1–45

—, 1986 'Urns of no small variety': Collared Urns reviewed, *Proc Prehist Soc*, **52**, 339–51

Burrell, A, 1642 *A Briefe Relation discovering Plainley the true Causes why the great Levell of the Fenns in the Severall Counties of Norfolk, Suffolk, Cambridge, Huntingdon, Northampton and Lincoln Shires have been drowned and made unfruitful for many years past*

Burton, R G O, 1987 The role of thermokarst in landscape development in eastern England, in *Periglacial processes and landforms in Britain and Ireland* (ed J Boardman), 203–8, Cambridge

Bushnell, G H S, and Cra'ster, M D, 1959 A pagan Saxon burial at Ely, *Proc Cambridge Antiq Soc*, **53**, 57

Camden, W, 1637 *Britain, or a chorographicall description of England...*, London

Candidus, H, *c* 1150 Historiae Coenobii Burgensis, in *Historiae Anglicanae Scriptores Varii* (ed J Sparke, 1723)

Chapman, V J, 1976 *Coastal vegetation*, 2 edn, Oxford

Chowne, P, 1979 Billingborough, *Curr Archaeol*, **67**, 246–8

—, 1980 Bronze Age settlement in south Lincolnshire, in Barrett and Bradley 1980, 265–305

—, 1988 *Aspects of later prehistoric settlement in Lincolnshire: a study of the western fen-margin and Bain Valley*, unpub PhD thesis, Univ Nottingham

—, forthcoming *Excavations at Billingborough, Lincs, 1975–78*, EAA
Chowne, P, Girling, M, and Grieg, J, 1986 Excavations at an Iron Age defended enclosure at Tattershall Thorpe, Lincolnshire, *Proc Prehist Soc*, **52**, 159–88
Chowne, P, and Healy, F, 1983 Artefacts from a prehistoric cemetery and settlement in Anwick Fen, Lincolnshire, *Lincolnshire Hist Archaeol*, **18**, 37–46
Clark, J G D, 1933 Report on an early Bronze Age site in the south-eastern fens, *Antiq J*, **13**, 266–96
—, 1936a Report on a late Bronze Age site in Mildenhall Fen, west Suffolk, *Antiq J*, **16**, 29–50
—, 1936b The Fenland Research Committee, *Proc Cambridge Antiq Soc*, **37**, xv
—, 1949 A report on an excavation at the Car Dyke 1947, *Antiq J*, **29**, 266–96
—, 1955 A microlithic industry from the Cambridgeshire Fenland and other industries of Sauveterrian affinities from Britain, *Proc Prehist Soc*, **21**, 3–20
Clark, J G D, and Godwin, H, 1940 A late Bronze Age find near Stuntney, Isle of Ely, *Antiq J*, **20**, 52–71
— and —, 1962 The Neolithic in the Cambridgeshire fens, *Antiquity*, **36**, 10–22
Clark, J G D, Godwin, H, and Clifford, M H, 1935 Report on recent excavations at Peacock's Farm, Shippea Hill, Cambridgeshire, *Antiq J*, **15**, 284–319
Clark, J G D, Godwin, H, Godwin, E, and MacFadyen, W A, 1933 Report on an early Bronze Age site in the south-eastern fens, *Antiq J*, **13**, 266–96
Clark, J G D, Higgs, E S, and Longworth, I H, 1960 Excavations at the Neolithic site at Hurst Fen, Mildenhall, Suffolk, 1954, 1957 and 1958, *Proc Prehist Soc*, **26**, 202–45
Clarke, R R, 1939 The Iron Age in Norfolk and Suffolk, *Archaeol J*, **95**, 1–113
Clay, R M, 1909 *Medieval hospitals of England*, London
Cleal, R, 1984 The later Neolithic in eastern England, in *Neolithic studies, a review of some current research* (eds R Bradley and J Gardiner), BAR, **133**, 135–58, Oxford
Clifford, E M, 1961 *Bagendon, a Belgic oppidum*, Cambridge
Clough, T H M, and Cummins, W A, 1988 *Stone axe studies*, CBA Res Rep, **23**, London
Cobbett, W, 1830 *Rural rides* (eds G D H and M Cole, 1930), London
Coleman, M C, 1984 *Downham in the Isle*, Cambridge
Coles, B, and Coles, J, 1989 *People of the wetlands* , London
Coles, J M, 1962 European Bronze Age shields, *Proc Prehist Soc*, **28**, 156–90
—, 1973 *Archaeology by experiment*, London
—, 1976 Forest farmers: some archaeological, historical and experimental evidence relating to the prehistory of Europe, in *Acculturation and continuity in Atlantic Europe. Fourth Atlantic Colloquium, Ghent* (ed S J de Laet), 59–66, Bruges
—, 1978 The Somerset Levels: a concave landscape, in *Early land allotment in the British Isles* (eds H C Bowen and P J Fowler), BAR, **48**, 147–8, Oxford
—, 1984 *The archaeology of wetlands*, Edinburgh
—, 1991 *From the waters of oblivion. C J C Reuvens Lezing 2*, Assen
Coles, J M, and Hall, D N, 1983 The Fenland Project, *Antiquity*, **58**, 212–14
Coles, J M, and Lawson, A J (eds), 1987 *European wetlands in prehistory*, Oxford
Coles, J M, and Liversidge, J, 1965 The archaeology of the Cambridge region, in *The Cambridge region* (ed J A Steers), 112–32, Cambridge
Coles, J M, Orme, B J, May, J, and Moore, C N, 1979 Excavations of late Bronze Age or early Iron Age date at Washingborough Fen, *Lincolnshire Hist Archaeol*, **14**, 5–10
Coles, J M, and Trump, B A V, 1967 A rapier and its scabbard from West Row, Suffolk, *Proc Cambridge Antiq Soc*, **60**, 1–5
Colgrave, B (ed), 1956 *Felix's Life of Guthlac*, Cambridge
Coombs, D, 1992 Flag Fen platform and Fengate Power Station post alignment – the metalwork, *Antiquity*, **66**, 504–17
Courtney, P, 1981 The early Saxon Fenland: a reconsideration, in *Anglo-Saxon studies in archaeology and history* (eds D Brown, J Campbell, and S C Hawkes), BAR, **92**, 91–102, Oxford
Cox, J C, 1906 Religious houses, in *Victoria County History of the County of Norfolk* (ed W Page), **2**, 315–466, London
Dannell, G B, 1973 The Potter Indixivixus, in *Current research in Romano-British coarse pottery* (ed A Detsicas), CBA Res Rep, **10**, 130–42, London
Darby, H C, 1940 *The draining of the fens*, Cambridge
—, 1956 *The draining of the fens*, 2 edn, Cambridge
—, 1957 *The Domesday geography of eastern England*, 2 edn, Cambridge
—, 1971 *The Domesday geography of eastern England*, 3 edn, Cambridge
—, 1974 *The medieval Fenland*, 2 edn, Newton Abbot
—, 1983 *The changing Fenland*, Cambridge
Davey, P J, 1973 Bronze Age metalwork from Lincolnshire, *Archaeologia*, **104**, 51–127
de Brisay, K W, and Evans, K A (eds). 1975 *Salt – the study of an ancient industry*, Colchester
Dodson, W, 1665 *The designe for the perfect draining of the great Level of the fens*, London
Drayton, M, 1622 *The Second Part, or a continuance of Polyolbion*, London
Dugdale, W, 1657 *Things observable in our Itinerarie begun from London 19 May 1657* (diaries)
—, 1772 *The History of Imbanking and Draining of divers Fens and Marshes...* (1662), 2 edn (C N Cole), London
Dymond, D, 1985 *The Norfolk landscape*, London
Edmonds, M, 1987 Rocks and risks: some problems with lithic procurement strategies, in *Lithic analysis and later British prehistory* (eds A Brown and M Edmonds), BAR, **167**, Oxford
Edwardson, A R, 1966 Beaker and rusticated sherds associated with red deer antler sockets, *Proc Cambridge Antiq Soc*, **59**, 135
Ekwall, E, 1960 *The concise Oxford dictionary of English place names*, 4 edn, Oxford
Ennion, E A R, 1951 *Cambridgeshire, Huntingdonshire and the Isle of Ely*, London
Evans, C, 1987 Nomads in Waterland? Prehistoric transhumance and Fenland archaeology, *Proc Cambridge Antiq Soc*, **76**, 27–39
—, 1988 Excavations at Haddenham, Cambridgeshire: a 'planned' enclosure and its regional affinities, in *Enclosures and defences in the Neolithic of western Europe* (eds C Burgess, P Topping, C Mordant, and M Maddison), BAR, **S403**, 127–48, Oxford
—, 1989 Perishables and worldly goods – artefact decoration and classification in the light of wetlands research, *Oxford J Archaeol*, **8**, 179–201
—, 1992 Commanding gestures in lowlands: the investigation of two Iron Age ringworks, *Fenland Research*, **7**, 16–26
—, forthcoming Sampling settlements: investigations at Lingwood Farm, Cottenham, and Eye Hill Farm, Soham, *Fenland Research*, **8**
—, in prep Excavations at Honey Hill, Ramsey, *Fenland Research*
Evans, C, and Hodder, I, 1984 Excavations at Haddenham, *Fenland Research*, **1**, 32–6
— and —, 1985 The Haddenham project, *Fenland Research*, **2**, 18–23
— and —, 1987 Between two worlds: archaeological investigations in the Haddenham Levels, in Coles and Lawson 1987, 180–91
— and —, 1988 The Haddenham project – 1987: the Upper Delphs, *Fenland Research*, **5**, 7–14
Evans, C, and Serjeantson, D, 1988 The backwater economy of a fen-edge community in the Iron Age: the Upper Delphs, Haddenham, *Antiquity*, **62**, 360–70
Evans, J, 1881a *Ancient bronze implements, weapons and ornaments of Great Britain and Ireland*, London
—, 1881b A dugout canoe from Sutton, Cambridgeshire, *Comm Cambridge Antiq Soc*, **4**, 195–6
—, 1884 On a hoard of bronze objects found in Wilburton Fen near Ely, *Archaeologia*, **48**, 106–14
—, 1890 *The coins of the ancient Britons* (suppl), London
Evans, J G, and Simpson, D D A, 1991 Giants' Hills 2 Long Barrow, Skendleby, Lincolnshire, *Archaeologia*, **109**, 1–46
Everson, P, 1983 Aerial photography and fieldwork in north Lincolnshire, in *The impact of aerial reconnaissance on archaeology* (ed G Maxwell), CBA Res Rep, **49**, 14–26
Everson, P, and Hayes, P, 1984 Lincolnshire from the air, in Field and White 1984, 33–41
Farrar, R A H, 1975 Prehistoric and Roman saltworks in Dorset, in de Brisay and Evans 1975, 14–20
Fell, C, and Liversidge, J, 1953 Archaeological notes, *Proc Cambridge Antiq Soc*, **47**, 40
Field, N, 1986 An Iron Age timber causeway at Fiskerton, Lincolnshire, *Fenland Research*, **3**, 49–53

Field, N, and Hurst, H, 1983 Roman Horncastle, *Lincolnshire Hist Archaeol*, **18**, 47–88

Field, N, and White, A (eds), 1984 *A prospect of Lincolnshire*, Gainsborough

Fowler, G, 1932 Old river-beds in the Fenlands, *Geog J*, **79**, 210–12

—, 1933 Shrinkage of the peat-covered Fenlands, *Geog J*, **81**, 149–50

—, 1934 The extinct waterways of the Fens, *Geog J*, **83**, 30–9

—, 1948 Cratendune; a problem of the Dark Ages, *Proc Cambridge Antiq Soc*, **41**, 70–3

—, 1949 A Romano-British village near Littleport, Cambs, with some observations on the distribution of early occupation, and on the drainage of the fens, *Proc Cambridge Antiq Soc*, **43**, 7–20

Fox, C, 1923 *The archaeology of the Cambridge region*, Cambridge

French, C A I, 1988 Further aspects of the buried soils in the fen margin northeast of Peterborough, Cambridgeshire, in *The exploitation of wetlands*, (eds P Murphy and C A I French) BAR, **186**, 193–211, Oxford

—, 1991 Excavation of Deeping St Nicholas barrow site 28, Lincolnshire, *Antiquity*, **65**, 580–2

—, 1992 Excavation at Parson Drove site 15, *Fenland Research*, **7**, 62–4

French, C A I, and Begg, C, 1992 Excavation of the barrow at Little Duke Farm, South Lincolnshire, *Fenland Research*, **7**, 40–2

French, C A I, and Pryor, F M M, 1993 *The South-West Fen Dyke Survey Project 1982–6*, EAA, **59**, Peterborough

Gallois, R W, 1979 Geological investigations for the Wash Water Storage Scheme, *Rep Inst Geol Sci*, **78**/19

—, 1988 Geology of the country around Ely, *Mem Brit Geol Survey*, Sheet 173

Gardiner, J P, 1980 Land and social status – a case study from eastern England, in Barrett and Bradley 1980, 101–14

Garrood, J R, 1937 An Iron Age and Romano-British village in Huntingdonshire, *Trans Cambridgeshire Huntingdonshire Archaeol Soc*, **5**, 89–101, 181–94

—, 1938 (Untitled letter), *Antiq J*, **18**, 76–7

Gedge, J D, 1882 A Roman villa at Methwold, *J British Archaeol Ass*, **38**, 110–11

Gell, A S R, 1949 An early Iron Age site at Lakenheath, *Proc Cambridge Antiq Soc*, **42**, 112–16

Gibson, A M, 1982 *Beaker domestic sites, a study of the domestic pottery of the late third and early second millennia BC in the British Isles*, BAR, **107**, Oxford

Glasscock, R E, 1975 *The Lay Subsidy of 1334*, London

Godwin, H, 1938 The origin of roddons, *Geog J*, **91**, 241–50

—, 1940 Studies of the post-glacial history of British vegetation, III, Fenland pollen diagrams, IV, Post-glacial changes of relative land and sea-level in the English Fenland, *Phil Trans Roy Soc Lond*, **B230**, 239–303

—, 1978 *Fenland: its ancient past and uncertain future*, Cambridge

—, 1981 *The archives of the peat bogs*, Cambridge

Godwin, H, and Clifford, M H, 1938 Studies of the post-glacial history of British vegetation, I, Origin and stratigraphy of Fenland deposits near Woodwalton, Hunts, II, Origin and stratigraphy of deposits in southern Fenland, *Phil Trans Roy Soc Lond*, **B229**, 323–406

Godwin, H, Godwin, M E, and Clifford, M H, 1935 Controlling factors in the formation of fen deposits, as shown by peat investigations at Wood Fen, near Ely, *J Ecol*, **23**, 509–35

Godwin, H, and Vishnu-Mittre, 1975 Studies of the post-glacial history of British vegetation, XVI, Flandrian deposits of the Fenland margin at Holme Fen and Whittlesey Mere, Hunts, *Phil Trans Roy Soc Lond*, **B270**, 561–604

Green, M J, 1976 *A corpus of religious material from the civilian areas of Roman Britain*, BAR, **24**, Oxford

Green, R D, 1968 *Soils of Romney Marsh, Bull Soil Survey England Wales*, Harpenden

Greenfield, E, 1963 The Romano-British shrines at Brigstock, Northants, *Antiq J*, **43**, 228–63

Greensmith, J T, and Tucker, E V, 1986 Compaction and consolidation, in *Sea-level research: a manual for the collection and evaluation of data* (ed O Plassche), 591–603, Norwich

Gregory, A, 1982 Romano-British settlement in west Norfolk and on the Norfolk fen edge, in *The Romano-British countryside* (ed D Miles), BAR, **193**, 351–76, Oxford

Gurney, D, 1982 Romano-British salt production on the western fen edge: a reassessment, *Proc Cambridge Antiq Soc*, **71**, 81–4

—, 1986 A salt production site at Denver; excavations by Charles Green, 1960, in *Settlement, religion and industry on the fen edge; three Romano-British sites in Norfolk* (ed D Gurney), EAA, **31**, 93–146, Norwich

Haigh, D, 1988 *The religious houses of Cambridgeshire*, Cambridge

Hall, D N, 1977 The Sea Bank in Cambridgeshire, *Proc Cambridge Antiq Soc*, **67**, 67–9

—, 1978 Elm – a field survey, *Proc Cambridge Antiq Soc*, **68**, 21–46

—, 1981 The changing landscape of the Cambridgeshire silt fens, *Landscape Hist*, **3**, 37–49

—, 1982 *Medieval fields*, Princes Risborough

—, 1987 *The Fenland Project*, **2**: *Fenland landscapes and settlement between Peterborough and March*, EAA, **35**, Cambridge

—, 1992 *The Fenland Project*, **6**: *The south-western Cambridgeshire Fenlands*, EAA, **56**, Cambridge

—, forthcoming *The Fenland Project*, **10**: *The Isle of Ely and Wisbech*, EAA, Cambridge

Hall, D N, and Harding, R E, 1985 *Rushden, a Duchy of Lancaster village*, Rushden

Hall, D N, and Martin, P W, 1980 *Durobrivae*, **8**, 9–10

Hall, D N, and Switsur, R, 1981 A buried peat band at Manea and its possible implications, *Proc Cambridge Antiq Soc*, **71**, 75–80

Hallam, H E, 1954 *The new lands of Elloe. A study of early reclamation in Lincolnshire*, Leicester

—, 1960 Saltmaking in the Lincolnshire Fenland during the Middle Ages, *Lincolnshire Archit Archaeol Soc Rep Pap*, **8**, 85–112

—, 1963 The Fen Bylaws of Spalding and Pinchbeck, *Lincolnshire Archit Archaeol Soc Rep Pap*, **10**:1, 40–53

—, 1965 *Settlement and society. A study of the early agrarian history of South Lincolnshire*, Cambridge

Hallam, S J, 1960 Romano-British salt industry in south Lincolnshire, *Lincolnshire Archit Archaeol Soc Rep Pap*, **8**, 35–75

—, 1970 Settlement around the Wash, in Phillips 1970, 22–113 and gazetteer

Hampton, J N, 1983 Some aspects of interpretation and mapping of archaeological evidence from air photography, in *The impact of aerial reconnaissance on archaeology* (ed G S Maxwell), CBA Res Rep, **49**, 109–23

Hart, C R, 1966 *The early charters of eastern England*, Leicester

Hart, W H, and Lyons, P A, 1884, 1886, 1893 *Cartularium Monasterii de Ramseia*; **1**; *Cartularium Monasterii de Ramseia*, **2**; *Cartularium Monasterii de Ramseia*, **3**, London

Hawkes, C F C, and Hull, M R, 1947 *Camulodunum*, Rep Res Comm Soc Antiq London, **14**

Hayes, P P, 1985 Relating fen edge sediments, stratigraphy and archaeology near Billingborough, south Lincolnshire, in *Palaeoenvironmental investigations. Research design, methods and data analysis* (eds N R J Fieller, D D Gilbertson, and N G A Ralph), BAR **S258**, 245–69, Oxford

—, 1987 Development in the analysis and presentation of survey results: Roman pottery in the south Lincolnshire fens, *Fenland Research*, **4**, 20–7

—, 1988 Roman to Saxon in the south Lincolnshire fens, *Antiquity*, **62**, 321–6

Hayes, P P, and Lane, T W, 1992 *The Fenland Project*, **5**: *Lincolnshire Survey, the south-west fens*, EAA, **55**, Sleaford

Healey, R H, 1969a Bourne ware, in Whitwell and Wilson 1969, 108–9

—, 1969b Quadring, in Whitwell and Wilson 1969, 110

—, 1977 Medieval saltmaking, *South Lincolnshire Archaeol*, **1**, 4–5

—, 1979 Recent Saxon finds from south Lincolnshire: middle Saxon pottery in the Fenland, *Lincolnshire Hist Archaeol*, **14**, 80–1

—, 1984 Toynton All Saints: decorated jugs from the Roses Kiln, in Field and White 1984, 73–8

Healey, R H, and Hurcombe, L, 1989 A Bronze Age barrow group in Walcott, Lincolnshire, *Fenland Research*, **6**, 17–20

Healy, F, 1984 Farming and field monuments: the Neolithic in Norfolk, in Barringer 1984, 77–140

—, 1988 *The Anglo-Saxon cemetery at Spong Hill, North Elmham*, **6**: *occupation during the seventh to second millennia BC*, EAA, **39**, Norwich

—, 1991 Lithics and pre-Iron Age pottery, in Silvester 1991, 116–39

—, 1992 Neolithic and Bronze Age – a shopping list, *Fenland Research*, **7**, 3–6

—, forthcoming *The Wissey embayment: evidence for pre-Iron Age occupation accumulated prior to the Fenland Project*, EAA, Norwich

Healy, F, Cleal, R M J, and Kinnes, I, 1993 *Excavations on Redgate Hill, Hunstanton, 1970 and 1971*, EAA, Norwich

Healy, F, and Housley, R, 1992 Nancy was not alone: human skeletons of the early Bronze Age from the Norfolk peat fen, *Antiquity*, **66**, 948–55

Healy, F, and Silvester, R, 1991 The Decoy Farm sandhill, Hockwold, in Silvester 1991, 140–2

Heichelheim, F M, 1937 On some unpublished Roman bronze statuettes in the Museum of Archaeology and Ethnology, Cambridge, *Proc Cambridge Antiq Soc*, **37**, 52–67

Herne, A, 1988 A time and a place for the Grimston bowl, in *The archaeology of context in the Neolithic and Bronze Age, recent trends* (eds J Barrett and I Kinnes), 9–29, Sheffield

Hillam, J, 1992 The dating of archaeological sites in the United Kingdom, in *Tree-rings and environment* (eds T Bartholin, B Berglund, D Eckstein, and F Schweingruber), 146–9, Lund

Hodder, I, and Shand, P, 1988 The Haddenham long barrow: an interim statement, *Antiquity*, **62**, 349–53

Holton-Krayenbuhl, A, 1988 Excavations on the Paddock, Ely, Cambs, *Proc Cambridge Antiq Soc*, **77**, 119–23

Hutchinson, J N, 1980 The record of peat wastage in the East Anglian Fenlands at Holme Post, AD 1848–1978, *J Ecol*, **68**, 229–49

Jacobi, R, 1984 The Mesolithic of northern East Anglia and contemporary territories, in Barringer 1984, 43–76

James, S, 1986 The Fen Causeway and an earthwork enclosure at Estover, March, Cambs, *Fenland Research*, **3**, 29–30

Jennings, J N, 1950 The origin of the Fenland meres: Fenland homologues of the Norfolk Broads, *Geol Mag*, **87**, 217–25

Johns, C, 1986 The Roman silver cups from Hockwold, Norfolk, *Archaeologia*, **108**, 1–13

Johnson, G, 1840 A bronze vessel discovered on the Isle of Ely, *Archaeologia*, **28**, 436

Jope, E M, 1987 The Witham shield, in *Prehistoric and Roman studies* (ed G de G Sieveking), 61–8, London

Jukes-Browne, A J, 1885 *Geology of south-west Lincolnshire*, London

Kelly, T, 1967 A series of late middle Bronze Age sites, Wilde Street, Mildenhall, *Proc Suffolk Inst Archaeol*, **31**, 47–56

Kenny, E J A, 1933 A Roman bridge in the Fens, *Geog J*, **82**, 434–41

Kinnes, I, 1979 *Round barrows and ring-ditches in the British Neolithic*, British Mus Occas Pap, **7**, London

—, 1985 The pottery, in Pryor, French, and Taylor 1985, 295–7

Kinnes, I, Gibson, A, Ambers, J, Bowman, S, Leese, M, and Boast, R, 1991 Radiocarbon dating and British Beakers: the British Museum programme, *Scottish Archaeol Rev*, **8**, 35–78

Kirkham, B, 1975 Saltmaking sites found in north-east Lincolnshire since 1960, in de Brisay and Evans 1975, 41–2

—, 1981 The excavation of a prehistoric saltern at Hogsthorpe, Lincolnshire, *Lincolnshire Hist Archaeol*, **16**, 5–10

Kirkus, A M, 1959 The records of the Commissioners of Sewers in the Parts of Holland 1547–1603, *Lincolnshire Rec Soc*, **54**

Knowles, D, and Hadcock, R N, 1953 *Medieval religious houses in England and Wales*, London

Lamb, H H, 1981 Climate from 1000 BC to AD 1000, in *The environment of man: the Iron Age to the Anglo-Saxon period* (eds G Dimbleby and M Jones), BAR, **87**, 53–65

Lane, T W, 1986 Fenland Project Field Survey: Lincolnshire: the western fens, 3, *Fenland Research*, **3**, 7–12

—, 1988 Pre-Roman origins for settlement on the fens of south Lincolnshire, *Antiquity*, **62**, 314–21

—, 1992 Excavation and evaluation of a Romano-British waterlogged site at Market Deeping, *Fenland Research*, **7**, 43–7

—, 1993 *The Fenland Project*, **8**: *Lincolnshire Survey, the northern fen-edge*, EAA, Sleaford

—, forthcoming Excavations on three Neolithic/Bronze Age sites in the Lincolnshire Fenland, *Fenland Research*, **8**

Lane, T W, and Trimble, D, 1992 A lithic scatter at Mexican Bridge, Midville, Lincolnshire, *Fenland Research*, **7**, 48

Lawson, A J, 1980 The evidence for later Bronze Age settlement and burial in Norfolk, in Barrett and Bradley 1980, 271–94

—, 1984 The Bronze Age in East Anglia, with particular reference to Norfolk, in Barringer 1984, 141–77

Lawson, A J, Martin, E A, and Priddy, D, 1981 *The barrows of East Anglia*, EAA, **12**, Norwich

Leaf, C S, 1935a Report on the excavation of two sites in Mildenhall Fen, *Proc Cambridge Antiq Soc*, **35**, 106–27

—, 1935b Two Bronze Age barrows at Chippenham, Cambs, *Proc Cambridge Antiq Soc*, **35**, 134–55

—, 1940 Further excavations in Bronze Age barrows at Chippenham, Cambs, *Proc Cambridge Antiq Soc*, **39**, 29–68

Leah, M, 1992 The Fenland Management Project, Norfolk, *Fenland Research*, **7**, 49–59

Leah, M, and Crowson, A, forthcoming The Fenland Management Project, Norfolk, *Fenland Research*, **8**

le Patourel, J, 1970 Haddenham, Hinton Hall, *Medieval Archaeol*, **14**, 189

Lethbridge, T C, 1927 An Anglo-Saxon hut in the Car Dyke at Waterbeach, *Antiq J*, **7**, 141–6

—, 1930 Bronze Age burials at Little Downham, Cambridgeshire, *Antiq J*, **10**, 162–4

—, 1935 Little Downham Beaker group, *Proc Cambridge Antiq Soc*, **35**, 145

—, 1937 Annual reports, *Proc Cambridge Antiq Soc*, **37**, xiii–xiv

—, 1950 The excavation of the Snailwell group of Bronze Age barrows, *Proc Cambridge Antiq Soc*, **43**, 30–49

—, 1952 A jewelled Anglo-Saxon pendant from the Isle of Ely, *Proc Cambridge Antiq Soc*, **46**, 1–3

—, 1954 The burial of an Iron Age warrior at Snailwell, *Proc Cambridge Antiq Soc*, **47**, 25–37

Lethbridge, T C, Fowler, G, and Sayce, R U, 1931 A skeleton of the early Bronze Age found in the fens, *Proc Prehist Soc East Anglia*, **6**, 362–4

Lethbridge, T C, and O'Reilly, M, 1933 Archaeological notes, *Proc Cambridge Antiq Soc*, **33**, 165

—, and —, 1936 Archaeological notes, *Proc Cambridge Antiq Soc*, **36**, 163 and pl II

Lewis, S G, Whiteman, C A, and Bridgland, D R (eds), 1991 *Central East Anglia and the Fen Basin, Field Guide*, Quaternary Res Ass, London

Longworth, I H, 1984 *Collared Urns of the British Bronze Age in Great Britain and Ireland*, Cambridge

Lynam, E, 1936 Maps of the Fenland, in Page *et al* 1936, 291–306

Malim, T, 1992 *Stones Camp, Wimblington*, Archaeology Section, Cambridgeshire County Council, Rep **71**

Malmesbury, Earl of, 1870 *A series of letters of the first Earl of Malmesbury, his family and friends*, **1**, London

Margary, I D, 1973 *Roman roads in Britain*, 3 edn, London

Martin, E, 1976 The excavation of two tumuli on Waterhall Farm, Chippenham, Cambridgeshire, *Proc Cambridge Antiq Soc*, **66**, 1–14

—, 1987 West Row Fen and Swales Fen, Mildenhall, Suffolk, *Fenland Research*, **4**, 38–41

—, 1988 Swales Fen, Suffolk: a Bronze Age cooking pit?, *Antiquity*, **62**, 358–9

—, in prep a *The Fenland Project*, **10**: *Suffolk survey, Lakenheath and Mildenhall*, EAA

—, in prep b *West Row Fen, Suffolk: the excavation of a prehistoric fen edge settlement*, EAA

Martin, E, and Murphy, P, 1988 West Row Fen, Suffolk: a Bronze Age fen edge settlement site, *Antiquity*, **62**, 353–8

May, J, 1976 *Prehistoric Lincolnshire*, History of Lincolnshire, Series 1, Lincoln

—, 1984 Major settlements of the late Iron Age in Lincolnshire, in Field and White 1984, 18–22

Mayes, P, and Dean, M J, 1976 *An Anglo-Saxon cemetery at Baston, Lincolnshire*, Lincolnshire Hist Archaeol Occas Pap, **3**

McAvoy, F, 1984 The marine salt extraction industry in the late medieval period at Wainfleet, Lincolnshire, *Fenland Research*, **1**, 37–9

McGrail, S, 1978 *Logboats of England and Wales*, BAR, **51**, Oxford

McKenny Hughes, H, 1904 A Roman pottery kiln at Horningsea, Cambridgeshire, *Proc Cambridge Antiq Soc*, **4**, 174–94

Meaney, A, 1964 *A gazetteer of early Anglo-Saxon burial sites*, London

Mellows, W T, 1925 The Granges of the Abbey of Peterborough, *Peterborough Natur Hist Sci Archaeol Soc Annu Rep*, 1923–4, 55–66

Miller, E, 1951 *The Abbey and Bishopric of Ely*, Cambridge

Miller, S H, and Skertchly, S B J, 1878 *The Fenland past and present*, Wisbech

Moore, P D, 1985 Forests, man and water, *Internat J Envir Stud*, **25**, 159–66

—, 1988 The development of moorlands and upland mires, in *Archaeology and the flora of the British Isles* (ed M Jones), Oxford Univ Comm Archaeol Monog, **14**, 116–22

Murphy, P, 1978 Potboiler sites, *Norfolk Archaeol Rescue News*, **14**, 18–20
—, 1983 Studies of the environment and economy of a Bronze Age fen-edge site at West Row, Mildenhall, Suffolk: a preliminary report, *Circaea*, **1**.2, 49–60
—, 1992 Environmental archaeology: a review of progress, *Fenland Research*, **7**, 35–9
—, forthcoming Environmental archaeology: second progress report, *Fenland Research*, **8**
Myers, J N L, 1986 *The English settlements*, Oxford History of England, Oxford
Needham, S P, 1991 Middle Bronze Age spearhead casting at Grime's Graves, in *Excavations at Grime's Graves, Norfolk 1972–1976, fasc* **3**, *Shaft X: Bronze Age flint, chalk and metalworking* (eds I Longworth, A Herne, G Varndell, and S Needham), 154–71, London
Nenquin, J, 1961 *Salt. A study in economic prehistory*, Dissertationes Archaeologicae Gandensis, Bruges
Neve, J, 1992 An interim report on the dendrochronology of Flag Fen and Fengate, *Antiquity*, **66**, 470–5
Noble, W, 1914 Discovery of an ancient boat in Warboys Fen, *Trans Cambridgeshire Huntingdonshire Archaeol Soc*, **3**, 143–4
O'Connor, B, 1980 *Cross-channel relations in the later Bronze Age*, BAR, **S91**, Oxford
O'Drisceoil, D A, 1988 Burnt mounds: cooking or bathing?, *Antiquity*, **62**, 671–80
O'Reilly, M, 1928 Archaeological notes, *Proc Cambridge Antiq Soc*, **29**, 105
—, 1934 Archaeological notes, *Proc Cambridge Antiq Soc*, **34**, 89 and pl 11
Owen, A E B, 1975 Medieval salting and the coastline in Cambridgeshire and north-west Norfolk, in de Brisay and Evans 1975, 42–4
—, 1981 *The Records of a Commission of Sewers for Wiggenhall 1319–1324*, Norfolk Rec Soc, **48**, Norwich
—, 1984 Salt, sea banks and medieval settlement on the Lindsey Coast, in Field and White 1984, 46–9
Owles, E, and Smedley, N, 1963 Archaeology in Suffolk 1963, *Proc Suffolk Inst Archaeol*, **29**, 350–4
Padley, J S, 1882 *The fens and floods of mid Lincolnshire*, Lincoln
Page, F M, 1934 *The estates of Crowland Abbey*, Cambridge studies in economic history, **2**, Cambridge
Page, W, Proby, G, and Morris, H E, 1926 *The Victoria History of the County of Huntingdon*, **1**, London
Page, W, Proby, G, and Inskip Ladds, S, 1936 *The Victoria History of the County of Huntingdon*, **3**, London
Painter, K S, 1971 Roman bronze crowns from Deeping St James, Lincolnshire, *Antiq J*, **51**, 319–21
Palmer, R, 1976 Interrupted ditch enclosures in Britain: the use of aerial photography for comparative studies, *Proc Prehist Soc*, **42**, 161–86
Pearson, G W, and Stuiver, M, 1986 High precision calibration of the radiocarbon time scale, 500–2500 BC, *Radiocarbon*, **28**, 839–62
Phillips, C W, 1936 The excavation of Giants' Hills long barrow, Skendleby, Lincolnshire, *Archaeologia*, **85**, 35–106
—, 1939 *Britain in the Dark Ages*, Ordnance Survey, Memoir with South Sheet 1:1,000,000 (N Sheet 1938)
—, 1951 The Fenland Research Committee, its past achievements and future prospects, in *Aspects of archaeology in Britain and beyond. Essays presented to O G S Crawford* (ed W F Grimes), 258–73
— (ed), 1970 *The Fenland in Roman times: studies of a major area of peasant colonisation, with a gazetteer covering all known sites and finds*, Roy Geog Soc Res Ser, **5**
Piggott, S, 1959 The carnyx in early Iron Age Britain, *Antiq J*, **39**, 19–32
Platts, G, 1985 *Land and people in medieval Lincolnshire*, Lincoln
Potter, T W, 1976 Excavations at Stonea, Cambridgeshire, *Proc Cambridge Antiq Soc*, **66**, 23–54
—, 1981 The Roman occupation of the central Fenland, *Britannia*, **12**, 79–133
—, 1983 Note in *Britannia*, **14**, 305
—, 1989 The Roman Fenland: a review of recent work, in *Research in Roman Britain 1960–89* (ed M Todd), Britannia Monog, **11**, 147–73
Potter, T W, and Jackson, R P J, 1982 The Roman site of Stonea, Cambridgeshire, *Antiquity*, **56**, 111–20
— and —, in prep *Excavations at Stonea*, London
Potter, T W, and Potter, C F, 1981 A Romano-British village at Grandford, March, *Proc Cambridge Antiq Soc*, **70**, 75–111
Potter, T W, and Whitehouse, D, 1982 A Roman building in the Cambridgeshire Fenland and some parallels near Rome, *World Archaeol*, **14**, 218–23
Prigg, H, 1888 On a recent discovery of a Bronze Age sword at Chippenham, Cambridgeshire, *Proc Suffolk Inst Archaeol*, **6**, 184
Pryor, F M M, 1974 *Excavation at Fengate, Peterborough, England: the first report*, Royal Ontario Mus Archaeol Monog, **3**, Toronto
—, 1978 *Excavation at Fengate, Peterborough, England: the second report*, Royal Ontario Mus Archaeol Monog, **5**, Toronto
—, 1980 *Excavation at Fengate, Peterborough, England: the third report*, Northamptonshire Archaeol Soc Archaeol Monog, **1**; Royal Ontario Mus Archaeol Monog, **6**, Leicester and Toronto
—, 1984a *Excavation at Fengate, Peterborough, England: the fourth report*, Northamptonshire Archaeol Soc Archaeol Monog, **2**; Royal Ontario Mus Archaeol Monog, **7**, Leicester and Toronto
—, 1984b Excavations in the fens near Peterborough, *Fenland Research*, **1**, 23–6
—, 1988 Etton, near Maxey, Cambridgeshire: a causewayed enclosure on the fen edge, in *Enclosures and defences in the Neolithic of western Europe* (eds C Burgess, P Topping, C Mordant, and M Maddison), BAR, **S403**, 107–26, Oxford
—, 1989 Earlier Neolithic organised landscapes and ceremonial in lowland Britain, in *The archaeology of context in the Neolithic and Bronze Age, recent trends* (ed J Barrett and I Kinnes), 63–72, Sheffield
—, 1991 *Flag Fen: prehistoric Fenland centre*, London
—, 1992 Discussion: the Fengate/Northey landscape, *Antiquity*, **66**, 518–31
Pryor, F M M, French, C, Crowther, D, Gurney, D, Simpsons, G, and Taylor, M, 1985 *The Fenland Project*, **1**: *Archaeology and environment in the Lower Welland Valley*, EAA, **27**, Cambridge
Pryor, F M M, French, C A, and Taylor, M, 1985 An interim report on excavations at Etton, Maxey, Cambridgeshire, *Antiq J*, **65**, 275–311
Pryor, F M M, and Kinnes, I, 1982 A waterlogged causewayed enclosure in the Cambridgeshire fens, *Antiquity*, **56**, 124–6
Pugh, R B, 1967 *The Victoria History of the County of Cambridge and the Isle of Ely*, **4**, London
Ranwell, D S, 1972 *Ecology of salt marshes and sand dunes*, London
Ravensdale, J R, 1974 *Liable to flood*, Cambridge
RCHM, 1972 *An inventory of archaeological sites in North East Cambridgeshire*, Royal Commission for the Historical Monuments of England
Reaney, P H, 1943 *The place-names of Cambridgeshire and the Isle of Ely*, English Place-name Society, **19**, Cambridge
Renn, D F, 1973 *Norman castles in England*
Richards, J, 1990 *The Stonehenge Environs project*, HBMCE Archaeol Rep, **16**, London
Riley, D N, 1945 Aerial reconnaissance of the Fenland basin, *Antiquity*, **19**, 145–53
—, 1946 Groups of circles in the silt fens, *Antiquity*, **20**, 150–3
Robinson, B, and Duhig, C, 1990 *Anglo-Saxon burials at the 'Three Kings', Haddenham 1990*, Archaeology Section, Cambridgeshire County Council, Rep **53**
Robinson, B, and Gregory, T, 1987 *Celtic fire and Roman rule*, North Walsham
Rogerson, A, and Silvester, R J, 1986 Middle Saxon occupation at Hay Green, Terrington St Clement, *Norfolk Archaeol*, **39**.3, 320–2
Rowlands, M J, 1976 *The organisation of middle Bronze Age metalworking*, BAR, **31**, Oxford
Rudkin, E H, and Owen, D M, 1960 The medieval salt industry in the Lindsey Marshland, *Lincolnshire Archit Archaeol Soc Rep Pap*, **8**, 76–84
Salzman, L F, 1938 *The Victoria History of the County of Cambridge and the Isle of Ely*, **1**, London
—, 1948 *The Victoria History of the County of Cambridgeshire and the Isle of Ely*, **2**, London
Shennan, I, 1980 *Flandrian sea-level changes in the Fenland*, unpub PhD thesis, Univ Durham
—, 1981 The nature, extent and timing of marine deposits in the English Fenland during the Flandrian Age, in *Florilegium Florinis Dedicatum* (eds L-K Konigsson and K Paabo), *Striae*, **14**, 177–81
—, 1982 Interpretation of Flandrian sea-level data from the Fenland, England, *Proc Geol Ass*, **83**(1), 53–63
—, 1986a Flandrian sea-level changes in the Fenland 1: the geographical setting and evidence of relative sea-level changes, *J Quaternary Sci*, **1**, 119–54

—, 1986b Flandrian sea-level changes in the Fenland 2: tendencies of sea-level movement, altitudinal changes and local regional factors, *J Quaternary Sci*, **1**, 155–79

Silvester, R J, 1988a *The Fenland Project*, **3**: *Marshland and the Nar Valley, Norfolk*, EAA, **45**, Norwich

—, 1988b Settlement earthworks at Hilgay and the ring ditches in the silt fens, *Norfolk Archaeol*, **40**.2, 194–9

—, 1988c The Norfolk fens, *Antiquity*, **62**, 326–30

—, 1991 *The Fenland Project*, **4**: *The Wissey embayment and the Fen Causeway, Norfolk*, EAA, **52**, Norwich

Silvester, R J, and Hall, D N, 1985 Roddons or rodhams?, *Fenland Research*, **2**, 66–7

Simmons, B B, 1975a *The Lincolnshire Car Dyke*, Heckington

—, 1975b Saltmaking in the silt fens of Lincolnshire in the Iron Age and Roman periods, in de Brisay and Evans 1975, 33–6

—, 1979 The Lincolnshire Car Dyke: navigation or drainage?, *Britannia*, **10**, 183–96

—, 1980 Iron Age and Roman coasts around the Wash, in *Archaeology and coastal change* (ed F H Thompson), Soc Antiq Occas Pap, ns, **1**, 56–73

Skertchly, S B J, 1877 *The geology of the Fenland*, Mem Geol Survey, London

Smith, A G, 1970 The stratigraphy of the northern Fenland, in Phillips 1970, 147–64

Smith, A G, and Pilcher, J R, 1973 Radiocarbon dates and vegetational history of the British Isles, *New Phytol*, **72**, 903–14

Smith, A G, Whittle, A, Cloutman, E W, and Morgan, L, 1989 Mesolithic and Neolithic activity and environmental impact on the south-east fen edge in Cambridgeshire, *Proc Prehist Soc*, **55**, 207–49

Sparks, B W, Williams, R B G, and Bell, F G, 1972 Presumed ground-ice depressions in East Anglia, *Proc Roy Soc London*, **A327**, 329–43

Straw, A, 1979 Eastern England, in *Eastern and central England*, (eds A Straw and K Clayton), 3–139, London

Swinnerton, H H, 1931 The post-glacial deposits of the Lincolnshire coasts, *Quaternary J Geol Soc London*, **87**, 360–75

—, 1932 The prehistoric pottery sites of the Lincolnshire coast, *Antiq J*, **12**, 239–53

Tansley, A G, 1939 *The British islands and their vegetation*, Cambridge

Taylor, A, 1977 The Sea Bank in Cambridgeshire, *Proc Cambridge Antiq Soc*, **67**, 63–5

—, 1984 A Roman stone coffin from Stuntney, *Proc Cambridge Antiq Soc*, **73**, 15–22

—, 1985 Prehistoric, Roman, Saxon and medieval artefacts from Cambridgeshire, *Proc Cambridge Antiq Soc*, **74**, 47–8

Taylor, C C, 1974 *Fieldwork in medieval archaeology*, London

Taylor, J J, 1980 *Bronze Age goldwork of the British Isles*, Cambridge

Taylor, M, 1992 Flag Fen: the wood, *Antiquity*, **66**, 476–98

Thirsk, J, 1965 *Fenland farming in the sixteenth century*, Leicester

Thompson, F H, 1955 Archaeological notes for the year 1954, *Lincolnshire Archit Archaeol Soc Rep Pap*, **6**, 1–13

—, 1956 Anglo-Saxon sites in Lincolnshire: unpublished material and recent discussions, *Antiq J*, **36**, 181–6

Thompson, P, 1856 *The history and antiquities of Boston and the Hundred Skirbeck*, Boston

Tooley, M J, 1978 *Sea level changes: north-west England during the Flandrian stage*, Oxford

Toynbee, M C, 1964 *Art in Britain under the Romans*, Oxford

Traill, C, 1836 *The backwoods of Canada*, Toronto

Trump, B A V, 1962 The origin and development of the British middle Bronze Age rapier, *Proc Prehist Soc*, **28**, 80–103

Valentine, K W G, and Dalrymple, J B, 1975 The identification, lateral variation, and chronology of two buried palaocatenas at Woodhall Spa and West Runton, England, *Quaternary Research*, **5**, 551–90

van de Plassche, O, 1980 Holocene water-level changes in the Rhine-Meuse delta as a function of changes in relative sea level, local tidal range, and river gradient, *Geologie en Mijnbouw*, **59**, 343–51

van de Plassche, O, Altena, S, Bohncke, S, Diederiks, M, Heijnis, H, and Wassenaar, E, 1987 Genesis of the 'Lillemer ridge', Marais de Dol, France, *Bulletin de l'Association française pour l'etude du Quaternaire*

van Gijn, A L, and Waterbolk, H T, 1984 The colonisation of the saltmarshes of Friesland, *Palaeohistoria*, **26**, 101–22

van Loon, A J, 1981 Problems of Holocene lithostratigraphy, *Geologie en Mijnbouw*, **60**, 353–61

—, 1985 Problems of lithostratigraphic classification of Holocene deposits in the perimarine area of the Netherlands: comment, *Geologie en Mijnbouw*, **64**, 211–13

Vermuyden, C, 1642 A discourse, in Wells 1830, **2**, 342

von Hugel, A, 1887 Some notes on the gold armilla found in Grunty Fen, *Comm Cambridge Antiq Soc*, **6**, 96–105

Wade-Martins, P W, 1980 *Village sites in Launditch Hundred, East Anglian Archaeol*, **10**, Norwich

— (ed), 1987 *Norfolk from the air*, Norwich

Wainwright, G J, and Longworth, I H, 1971 *Durrington Walls: excavations 1966–1968*, Rep Res Comm Soc Antiq London, **29**, London

Walker, D, 1970 Direction and rate in some British post-glacial hydroseres, in *Studies in the vegetational history of the British Isles* (eds D Walker and R G West), 117–39, Cambridge

Walker, F G, 1914 A Roman pottery kiln at Horningsea, Cambs, *Proc Cambridge Antiq Soc*, **11**, 14–69

Waller, M, forthcoming *The Fenland Project*, **10**: *Fenland: the stratigraphic evidence for environmental change during the Flandrian*, EAA, Cambridge

Watson, W, 1827 *An historical account of the ancient town and port of Wisbech*, Wisbech

Wells, S, 1830 *The history and drainage of the Great Level of the Fens called the Bedford Level*, 2 vols, London

West, R G, 1987 A note on the March gravels and Fenland sea-levels, *Bull Geol Soc Norfolk*, **37**, 27–34

Wheeler, B D, 1980a Plant communities of rich-fen systems in England and Wales, 1, Introduction, Tall sedge and reed communities, *J Ecol*, **68**, 365–95

—, 1980b Plant communities of rich-fen systems in England and Wales, 3, Fen meadow, fen grassland and fen woodland communities, and contact communities, *J Ecol*, **68**, 761–88

—, 1984 British fens: a review, in *European mires* (ed P D Moore), 237–81, London

Wheeler, R M, and Wheeler, T V, 1936 *Verulamium: a Belgic and two Roman cities*, Rep Res Comm Soc Antiq London, **11**, London

Wheeler, W H, 1896 *A history of the fens of south Lincolnshire*, 2 edn, Boston

Whimster, R, 1981 *Burial practices in Iron Age Britain*, BAR, **90**, Oxford

White, A J, 1979a *Antiquities from the River Witham. Part 1, Prehistoric and Roman*, Lincolnshire Mus Info Sheet, Archaeol Ser, **12**, Lincoln

—, 1979b *Antiquities from the River Witham. Part 2, Anglo-Saxon and Viking*, Lincolnshire Mus Info Sheet, Archaeol Ser, **13**, Lincoln

—, 1979c *Antiquities from the River Witham. Part 3, Medieval*, Lincolnshire Mus Info Sheet, Archaeol Ser, **14**, Lincoln

—, 1979d *Sempringham Priory*, Lincolnshire Mus Info Sheet, Archaeol Ser, **17**, Lincoln

White, W, 1856 *White's Directory of Lincolnshire*

Whitwell, J B, 1970 *Roman Lincolnshire*, History of Lincolnshire Series, **2**, Lincoln

Whitwell, J B, and Wilson, C M (eds), 1969 Archaeological notes 1968, *Lincolnshire Hist Archaeol*, **1**(4), 99–119

Williams, M, 1982 Marshland and waste, in *The English medieval landscape* (ed L Cantor), 86–125, London

Williams, R B G, 1964 Fossil patterned ground in eastern England, *Biul Peryglac*, **14**, 337–49

Willis, E H, 1961 Marine transgression sequences in the English Fenlands, *Annu New York Acad Sci*, **95**, 368–76

Wilson, C, 1970 Archaeological notes, *Lincolnshire Hist Archaeol*, **5**, 3–19

Wilson, D R, 1978 Groups of circles in the silt fens, *Proc Cambridge Antiq Soc*, **68**, 43–6

Wingfield, R T R, Evans, C D R, Deegan, S E, and Floyd, R, 1978 Geological and geophysical survey of The Wash, *Rep Inst Geol Sci*, **78**/18

Woodgate, G M G, 1938 Ancient history of Walpole, *Isle of Ely and Wisbech Advertiser*, March 23, 1938

Wright, A P M, and Lewis, C P, 1989 *The Victoria History of the County of Cambridge and the Isle of Ely*, **9**, Oxford

Wyatt, R J, 1984 *Peterborough*, British Geological Survey 1:50,000, sheet 158, Ordnance Survey, Southampton

Wymer, J J, 1977 *Gazeteer of Mesolithic sites in England and Wales*, CBA Res Rep, **20**, London

—, 1985 *Palaeolithic sites of East Anglia*, Norwich

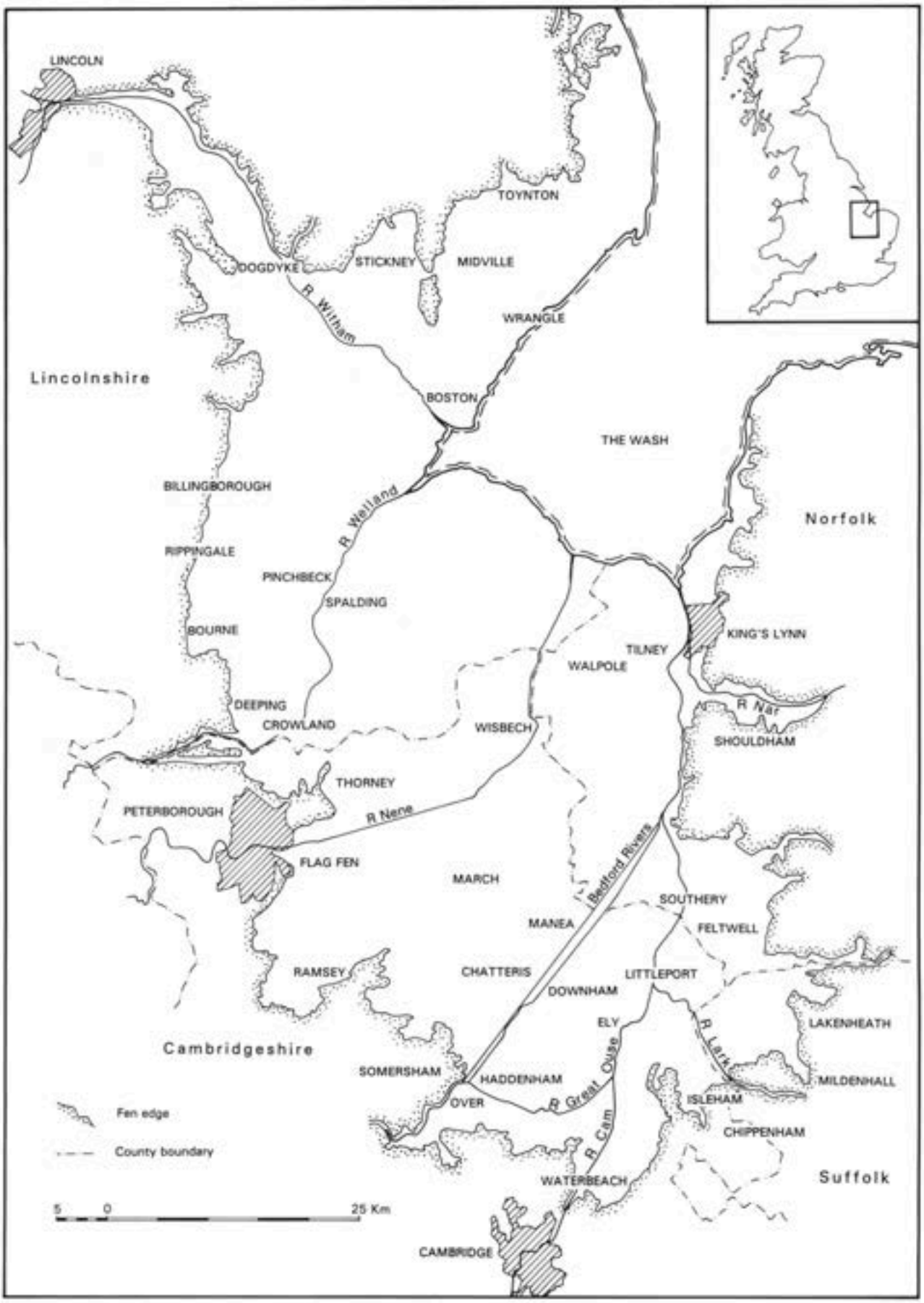
Young, A, 1805 *Annals of agriculture*, **43**, 542

—, 1813 *General view of the agriculture of the County of Lincolnshire*, reprinted 1970, Newton Abbot

# Index

**compiled by Lesley Adkins and Roy Adkins**

This index is selective; it gives names of places, organisations, Field Officers and certain people who played key roles in Fenland work in the past, and also major types of monument. The main entries are in **bold**.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E-book (PDF) published 2013

E-book (PDF) ISBN 978 1 84802 148 8
Version 1.0

First published 1994 in paperback ISBN 1 85074 477 7

*British Library Cataloguing in Publication data*
A CIP catalogue record for this book is available from the British Library.



For more information about English Heritage images, contact Archives Research Services, The Engine House, Fire Fly Avenue, Swindon SN2 2EH; telephone (01793) 414600.

Typeset by Printco
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