IRON AGE MARITIME NODES ON THE ENGLISH CHANNEL COAST.

AN INVESTIGATION INTO THE LOCATION, NATURE AND CONTEXT OF EARLY PORTS AND HARBOURS.

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Abstract

Studies of Iron Age coastal sites in southern Britain have previously concentrated on Hengistbury Head, Dorset and Mount Batten, Devon. These sites have coloured our understanding of late Iron Age cross-Channel interactions. The possibility of many other coastal sites being identified has been dismissed due to the assumption that they would be archaeologically unrecognisable. This study was established to review this question on the southern coast of England. The aim was to determine the criteria and method by which Iron Age coastal sites might be identified, to apply that method, and to model how the suggested sites might have interacted.

The physical nature of the English Channel coast in the Iron Age, contemporary vessels, and their port or harbour requirements are considered, and related to references in classical literature to Britain, the Channel and seafaring. Information from the coastal county Sites and Monuments Records, excavation records and published sources then provides an overview of the English Channel in the Iron Age.

The characteristics of Iron Age coastal sites are determined and a list of key physical traits is developed. The list is applied to the Iron Age coast and 40 possible sites identified. Each is then classified as 'definite', 'probable', or 'potential'. A gazetteer of all the sites is presented in Appendix One.

The sites are considered as 'nodes' – interface points on the maritime network – between sea-ways and their hinterland. Other key elements commonly found within a five kilometre radius of the coast are identified as components within the 'coastal node complex'. Three of the sites (Hengistbury Head, Poole Harbour, and Bigbury Bay) are examined in detail as case studies, including original fieldwork which provides new data to compare with previous investigations.

A model of 'nodal interactions' is presented representing different scales of operation amongst the coastal nodes. Their relationship with other sites and with their hinterlands is discussed. This draws upon 'port of trade' and 'central place' theory and from social and economic models of gateway communities.

The study is approached through a combination of maritime and terrestrial perspectives. It is concluded that coastal sites are identifiable in the archaeological record at a variety of scales. The conclusion provides a model for coastal interaction, trade and other relationships along and across the Channel in later prehistory and presents suggestions for future work.

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Declaration

The length of the thesis is approximately 88,000 words and is entirely my own work.

Definitions

Throughout the thesis certain key terms are used which require definition and are described below. Other terms are introduced where relevant in the body of the text.

Coast: The definition of 'the coast' varies with the scale of consideration. In general, the coast is "the point where the land meets the sea" (Davidson and Jones 2002, 20), but it can also be defined as "that part of the land which is washed by the sea" (Clissold 1991, 56). The distinction is that, as the latter expresses, the coast is not a point or a line, but rather a shifting environment between high and low tides, affected by changes in the tides, sea-level, erosion and accretion, with the complexities of estuarine and river networks leading to/from the shore. To ensure that the full arena of the described environment is considered it is perhaps useful to refer instead to the coastal or littoral zone in general (see Tooley 1990, 1). The **intertidal zone** specifically defines the area between low and high tides.

To coast: "to sail along a coast or follow a coastline" (Clissold 1991, 56).

Coaster: "vessel trading along the coast of a country" (Clissold 1991, 56).

HAT: Highest Astronomical Tide. This is the estimation of the highest point which sea-level will reach in all but exceptional circumstances.

Imports: defined here as material not produced in the immediate area.

LAT: Lowest Astronomical Tide. The estimation of the lowest sea level for normal conditions.

mCD: metres above Chart Datum. Negative numbers (for example, -1.2 mCD) denote metres below Chart Datum. Chart Datum (CD) is normally the level of LAT and varies along the coast. The relationship between CD and OD (see below) for each area is stated on the relevant Admiralty Chart and listed by the National Tidal and Sea Level Facility (NTSLF 2004).

MHWS: Mean High Water Springs. The average of high spring tide sea levels.

MLWS: Mean Low Water Springs. The average of low spring tide sea levels.

mOD: metres above (Newlyn) Ordnance Datum (OD). Negative numbers (for example, -1.2 mOD) denote metres below Ordnance Datum.

MOL: Minimum Occupation Level. The lowest level above the waterline at which it is considered 'occupation' (buildings, activity areas, etc.) could be positioned.

MWL: Mean Water Level. The average sea level for all states of the tide.

Neap tide: Bi-monthly tide with the smallest tidal range.

RSL: Relative Sea Level. The level of the sea in relation to the land.

Spring tide: bi-monthly tide with the largest tidal range (produces the highest and lowest tides each month).

Tidal range: the elevation difference between high tide and low tide.

To tramp: as 'to coast'.

Chapter 1

Defining the research

1.1 Introduction

This thesis presents the results of an investigation into the use of the English Channel in the Iron Age (covering the period *c.*500 BC – AD 50). It concentrates on the identification and characterisation of sites along the English coast of the Channel as 'nodes' and considers their nature, extent, and how they might have interacted at that time. As well as cross-Channel routes, the waters of the English Channel provide an east-west corridor between the Atlantic Ocean and the North Sea and the 'nodes' investigated here are port or harbour sites on that corridor that were used by vessels travelling inland riverine routes, along the coast and across the Channel. The study area extends from Land's End in the west to Dover in the east (Figure 1).

The archaeological record for the Iron Age of north-west Europe has been dominated by studies of artefacts and settlement sites. Although coastal sites of this date are known and have in some cases been examined through excavation, notably Hengistbury Head in Dorset (Bushe-Fox 1915; Cunliffe 1987) and Mount Batten in Devon (Cunliffe 1988a; Gardiner 2000), there has been comparatively little critical analysis of the characteristics of those sites and their interaction with other similar sites in the maritime network. Earlier archaeological studies have explored the theories and artefacts of trade, but the arenas for coastal interactions have not previously been a focus of study.

The known coastal sites of Hengistbury Head and Mount Batten are located close to modern towns that maintain a port/harbour function, and came to archaeological attention in advance of development in modern times. Indeed, the investigation by Bushe-Fox (1915) of Hengistbury Head is an early example of a pre-development evaluation excavation. However, the attention that these sites have received has resulted in their dominating the literature relating to coastal sites and trade. Because of the fairly large amounts of material recovered, the interests of subsequent research, and the fact that these are the only ones studied, these sites have been assumed to be the main places for along- and across-Channel interactions during later prehistory. Consequently, discussions of coastal sites have relied on the few investigated examples, regardless of how typical or representative these might actually be. The aim of this study was to determine the criteria and method by which other Iron Age coastal sites might be identified, to apply that method, and to model how the suggested sites might have interacted.

The investigation first considers the few known coastal sites and assesses their key characteristics. It then combines those characteristics in a model of physical traits that is applied to identify the possible locations of other sites and to explore the arenas for coastal interactions, including trade. The key questions approached in this study are:

- Where were the coastal sites involved in along- and across-Channel interactions in the Iron Age?
- What are the criteria by which the coastal sites can be identified and how can they be characterised? (This includes considerations of the physical traits of the sites, their landscape and coastal settings, and the requirements of the sites for their use by people and vessels.)
- What is the nature and extent of these sites?
- Can a theoretical model be constructed to explain how the coastal sites might have interacted with each other?

The answers provide a context for studies of trade and other relationships (along- and across-Channel), and suggest indicators for where future investigations might be focussed. It is apposite to ask these questions now, at a time of intensifying interest in maritime investigations and an increasing appreciation of the threat to coastal sites from erosion, sea-level changes and development (see Fulford et al. 1997). The research is also appropriate at this point in the development of Iron Age studies: there has been a move away from earlier preoccupations with invasions, migrations, art styles, and artefacts to a position where social structure, diversity, identity and interactions represent key themes (see Haselgrove et al. 2001). This study has re-evaluated former models and presents a new view of the coast in the Iron Age based on the recognition of numerous possible maritime 'node' sites.

Node sites are defined as 'points of interaction' in the maritime network, where coastal traffic meets inland and riverine traffic to exchange goods. As suggested above, only a few, possibly unrepresentative, coastal sites have been examined in the past, and thus Iron Age social and economic theories regarding coastal interactions have necessarily been limited. Relationships and interactions between the Iron Age sites at local, regional and inter-regional levels (and in some cases international) are here considered in order to develop a model of 'coastal nodes'. Reference is made to past and current social and economic theory as the interaction model is developed from a combination of port of trade, gateway community, and central place theory elements as well as the concept of riverine 'nodes' (Sherratt 1996) and information derived from this study. The model of Iron Age coastal 'nodes' extends from the riverine network and operates at different scales. The 'nodal sites' were involved in trade or exchange, either as small-scale safe havens serving the local vicinity, or as larger-scale sites participating in inter-regional or international exchanges.

As well as identifying and investigating possible 'coastal node' sites, this study also considered how those sites might have interrelated with each other and other sites in their hinterlands. The coastal sites did not exist in isolation but were part of a suite or 'complex' of elements, most of which could be identified within *c.* five kilometres of the coast site. The local site relationships are also examined, reviewing the various elements of the 'nodal complex' in the vicinity of the coast (especially hillforts and high ground enclosures) to endeavour to consider their roles within the complexes and contemporary social systems, with reference to both hierarchical and egalitarian social models (including Collis 1994a; 1994b; Cunliffe 1978a; 1994a; Haselgrove 1982; 1986; 1994; Hill 1995c; 1996; Sharples 1991a). It is recognised that many of the sites and routes had earlier origins in the Bronze Age and these are also discussed.

This study acknowledges the importance of the 'maritime perspective' but has not considered it in isolation: it looks both from the land to the sea, and from the sea to the land. The maritime perspective is an integral part of the development of Iron Age coastal sites and can be integrated with the methods and results of land-based studies. A terrestrial perspective of the landscape setting of the sites, and how they might have been used within the contemporary social-economic pattern, is combined with a maritime approach to consider the requirements of coastal sites (for vessels and regarding routes, tides, and other maritime considerations) and the pattern and use of sites along the coast.

The remainder of this chapter sets out the methodology followed to acquire and apply the data relating to the English Channel coast in the Iron Age, and outlines the structure of presentation of the information, the use of the data in constructing and testing the physical traits model, case studies and results and conclusions of the thesis.

1.2 Methodology

A detailed methodology was prepared to approach the large geographical and chronological range of this subject. It was designed to cover a three year period and was based on three main components:

- desk-based research
- fieldwork and post-fieldwork analysis
- collation of results and reporting.

1.2.1 Desk-based research

The purpose of the desk-based research was to define the current state of understanding of the Iron Age coast, to identify the known coastal sites, routes between them, distributions of relevant artefactual material and, in the final stage of the research, to consider how the sites interacted. In addition, maritime considerations of vessel types, port characteristics, tides and sea-level were investigated. The desk-based research incorporated searching and sorting data from Sites and Monuments Records, a library search and literature review, map search, and consideration of material held in museums.

Sites and Monuments Records (SMRs)

A key component of the desk-based element of the methodology was the acquisition and collation of data held in the SMRs of the counties and Unitary Authorities of the south coast of Britain. Each county maintains a Sites and Monuments Record (SMR) or Historic Environment Record (HER), some of the contents of which are also held in the National Monuments Record (NMR) in Swindon. In addition, the evolution of Unitary Authorities has led to records for some areas no longer being maintained at the former county level, e.g. for the areas of Torquay, Plymouth, Poole, and Southampton. In some cases this created problems in determining where relevant records were kept as well as issues related to lack of record maintenance due to budget changes associated with the restructuring of the authorities. For the bulk of this study, the evidence is considered in relation to historic (pre-1974) counties for convenience.

An application for information was made to each SMR Officer. Over time, each county responded, with differing degrees of detail, except for West Sussex, who supplied no information at all.[1] Unfortunately, the data held by the NMR for West Sussex (as well as the other counties investigated) was not up to date so the detail for that area is not as comprehensive as for others.

This search of the coastal county SMRs was undertaken to compile the basic data-set of known sites, monuments, and find spots relevant to this study. Each SMR stores and classifies data in different ways that made it impossible to apply uniform search criteria along the Channel coast. For those counties with a geographically searchable digital record (such as Exegesis or a GIS) an overlay map of the current coastline including estuaries plus a one kilometre buffer was provided (this was generated in ArcView). Any records that fell within the overlay and corresponded to the date ranges were 'captured' for the research data set. The terminology of the ranges was dependent on the variables employed at each county. These were usually period based. In order to maximise the return of potentially relevant records, the periods Bronze Age, Iron Age, (early) Roman, prehistoric, and unknown were used (some SMRs also returned records classified as Palaeolithic, Mesolithic or Neolithic).

For SMRs without a geographically searchable database, a manual search of the paper map-based record was undertaken. Developed from original Ordnance Survey records, the SMRs are catalogued by parish or OS quarter sheet. The records of every coastal/estuarine parish were searched for entries relevant to this study. This produced a fairly comprehensive data set although it must be noted that some of the records for Dorset were unavailable (having been sent to NMRC at Swindon as part of the National Mapping Programme).

[1] That was despite several requests from the writer, colleagues, and the supervisor of this PhD research.

The following searches were made:

County *(number of relevant/ acquired records)*	*Search type*	*Search criteria*
Cornwall *(2021/5044)*	Digital database search	All records within 1 km of the current coastline.
Devon *(254/370)*	Manual paper-based record search	All potentially relevant prehistoric, Roman and unknown date records in the south coast parishes.
Dorset *(143/774)*	Manual paper-based record search	All potentially relevant Bronze Age, Iron Age, Roman and unknown date records in the coastal parishes.
Hampshire *(798/1155)*	Digital GIS data search	All prehistoric, Roman and unknown date records within 5 km of the current coastline and tidal estuaries.
Isle of Wight *(117/2433)*	Manual paper-based record search	All prehistoric, Roman and unknown date records.
West Sussex *(97/308)*	NMR database	Prehistoric records from coastal OS squares.
East Sussex *(111/231)*	Digital GIS data search	All prehistoric, Roman and unknown date records within 5 km of the current coastline.
Kent *(157/5690)*	Digital database search	All records within 1 km of the current coastline.

The searches resulted in a total of 16,005 records of sites, find spots and observations from along the coast. This was reduced to a relevant project data set of 3698 records. The project database[2] was used to produce and assess sites and material distributions and the analysis of this information produced the foundation for the gazetteer of possible sites (Appendix One). The data acquired from the SMRs and NMR varied in detail but, as a minimum, recorded site name, date (or period) if known, site type and NGR. Further information from some counties included descriptions, notes and bibliographic references. In addition, some SMRs provided further information, such as aerial photographs and the help and assistance of the County Archaeological Officers in most cases was invaluable to this research.

[2] All the relevant SMR/HER records and details gathered from the desk-based research process were transferred to a project database that was constructed in MS Access97 and MS Excel97. This lists site name, easting, northing, elevation, parish, county, site type, site date/period, brief description, references, SMR UID, and project UID. Not all records have entries for every field. Added to this were data acquired from other sources including the publications studied as part of the literature review. A digital copy on cd-rom will form part of the project archive.

During the course of this research, the remit of English Heritage was extended to include ancient monuments in or under the seabed, to the 12-mile limit off England (National Heritage Act 2002). Many coastal counties are currently instigating marine SMRs that are proving very useful repositories of information. In addition, Dorset has recently been the subject of a pilot 'Rapid Coastal Zone Assessment' (Wessex Archaeology 2004) that collated all records relating the coastal archaeology of the county that were held in the HER and by local organisations.

Literature review and library searches

A considerable range of published material was consulted as part of the literature review and data gathering processes. From this, a list of known site locations was generated and potential sites recorded. Few of the works made reference to specific sites, but many named or hinted at the areas where such sites might be located. This information was extracted from the many postulated invasion/migration/trade routes (e.g. Fox 1932; Hawkes 1953; Burgess 1968; O'Connor 1980; Rowlands 1980; etc.), or from studies concerned with the economic/social movement of goods (e.g. Piggott 1938; Clark 1952; Smith 1959; Cunliffe 1982b; Parker Pearson 1990). These texts mentioned or detailed the sites of origin and deposition of artefacts and often the route between.

The development of this study has benefited from the artefact distributions published in the past (see Chapters Two and Three), but has used this material in an alternative fashion. Previous studies produced such distributions to prove the presence and reflect the patterns of trade. Within this work, the same material was applied to suggest the physical nature of the locations at which interactions such as trade might have occurred. Artefact distributions were utilised with some caution as distribution maps indicate where investigations have been conducted, not necessarily the 'true' distribution of the sites or artefacts (see Needham 1993). The production and study of artefact distributions has diminished in recent years as the awareness of problems associated with data collection and interpretation increase (Haselgrove et al. 2001, 18). However, they have been examined within this study, along with suggested routes, to indicate potential site locations as well as to identify material evidence for contacts. As shown in Chapter Three, the distributions and routes from other sources have concentrated on the 'hot spots' of Hengistbury Head and Mount

Batten, and the Thames Estuary (outside of this study area). These are important places and provide a starting point for the understanding of coastal node sites: the material was reconsidered to assist in the identification of other potential node sites along the south coast.

Excavation reports of relevant sites provided important information relating to the physical character and archaeological nature of the coastal sites, as well as the type of artefact that passed through them (for example, Bushe-Fox 1915; Longley 1980; Cunliffe 1987; 1988a; Woodward 1987a; Cox 1988). Other publications, such as Nigel Calder's account of the route and ports encountered during an along-Channel sailing passage (Calder 1986), provided information, often from a maritime perspective, of the character of coastal sites.

Studies specifically related to maritime technology, capabilities, and requirements (particularly Muckelroy 1981; McGrail 1983; 1990; 1993; 1995a; Davis 1997) also provided information regarding the artificial facilities and natural characteristics that a prehistoric port might have required, as well as the capabilities of the vessels and seafaring techniques that suggest possible routes and therefore potential terminal port sites.

The review made extensive use of geographical and geological texts to develop an understanding of the physical state of the coast over 2000 years ago, including considerations of post-glacial changes in sea level, land erosion and sediment accretion. This information was gathered from published sources and made use of models developed by the writer and colleagues for the Early History of the English Channel Project at Bournemouth University (Bournemouth University 2001). It was fundamental to the investigation that the geography and topography of the coastal areas (terrestrial and marine) were considered.

This element of the desk-based research made use of the library resources at Bournemouth, Southampton and Exeter Universities, the Society of Antiquaries of London, the National Oceanographic Library, and the West Country Studies Library. Inter-library loans were obtained from other institutions and extensive use was made of on-line resources, including the catalogues of the British Library (www.bl.uk) and the database of the British and Irish Archaeological Bibliography (www.biab.ac.uk/index.asp). A keyword list was developed and used in the searches, as well as specific searches for particular authors, topics or sites as required. The library searches provided the background for the literature review of the many strands of this research, including Iron Age social and economic theory, previous and current studies of along- and across-Channel relationships, nautical data and maritime perspectives, site theory, artefact studies, etc. Extensive use was made of classical sources and the translations of the Loeb series (now published by Harvard University Press), have been consulted unless otherwise specified.

Museum visits and material collections

The material collections and archives held at local, regional, and national museums provided another corpus of evidence relevant to this study. Material was viewed and examined at the museums of Truro, Plymouth, Kingsbridge, Exeter, Dorchester, Poole, Christchurch, Southampton, Oxford, Dover and the British Museum. Comparisons were made between the locally produced and imported items from later prehistory that were on display or held in the museums' stores. Particular attention was given to the material found at the case study areas, including the 'Bromby collection' held in store at Poole Waterfront Museum, which consists of items recovered from Green Island in Poole Harbour (see Chapter Seven).

Cartographic study and digital mapping

A further element of the desk-based investigation was a cartographic study. Historic and modern maps of the southern coastal zone were examined and compared with what is known of the Iron Age coast. Current and past Ordnance Survey maps were used with Admiralty charts and antiquarian maps where available. This suggested past topographic and geographic conditions which might match the characteristics suitable for coastal sites that had been identified in the physical traits model (see Chapter Four).

A primary base map was originally generated from combined digital Edx (terrain map) tiles with river courses digitised over the contour data. However, this produced a data file that was too large for practical use, so simpler maps were produced by manually digitising paper-based maps, excavation plans, postulated maritime routes, etc., using ArcGIS 8.1. The results were used as base maps on which the site distributions derived from the SMR and other searches were overlaid. This permitted a clear picture to be drawn showing both known site locations and apparent lacunae.

Applying the results of the desk-based research

A summary of the literature search is presented in Chapter Two, and the site-based data derived from the literature review, the SMRs and the museum research is presented in Chapter Three. The evidence gathered from the desk-based research and literature review was used to develop two new models of Iron Age coastal sites which are presented in Chapter Four. The model of physical characteristics and elements was based on the observed topographic characteristics of the known coastal sites and studies of ports and harbours, particularly the works of Davis (1997), Westerdahl (1992), Waddelove and Waddelove (1990) and Toft (1992) (also see Chapter Three). Davis considered six criteria that were required of pre-Medieval ports (1997, 133): his list of key elements was particularly useful to this study (see Chapters Three and Four).

1.2.2 Fieldwork

In order to test the models developed from the desk-based research and literature review, three case studies were examined in detail, including fieldwork investigation. It was originally proposed that each sector of the Channel coast (south-east, central, and south-west) would be the subject of a case study. However, the three sites finally subjected to detailed study were located in the central and south-west sectors. They clearly stood out as suitable for research due to their locations, characteristics, availability of access to the site and of data and supporting information, and there was no particularly suitable site in the south-east.

The three case study sites were Hengistbury Head (Chapter Six), Poole Harbour (Chapter Seven), and Bigbury Bay (Chapter Eight). These sites were selected mainly because of their correlation with the physical traits model set out in Chapter Four, as well as suggestions from the desk-based review that imported material had been found or trading activity might have been conducted in each area. In addition, they provided an example of each of the three classifications of 'definite', 'probable' and 'potential' site types.

Poole Harbour and Hengistbury Head are within 15 km of each other; Bigbury Bay is close to the other well-known site of Mount Batten, *c.*10 km from Bigbury. Both Hengistbury Head and Mount Batten had been excavated by Barry Cunliffe (1987; 1988a). His published reports gave much attention to the artefacts with only general considerations of the physical scale, internal dynamics and operation of the sites. Despite that, Hengistbury Head and Mount Batten have been considered the main maritime trading foci on the south coast. The case study sites were selected to test whether that was the case.

The areas of Hengistbury Head, Poole Harbour, and the extended Purbeck coast were visited by boat to examine certain elements identified in the physical traits model, including the presence or absence of topographic navigation markers, and to allow the suitability of the approach from the sea and potential port characteristics to be assessed. It was confirmed that these factors were indeed relevant to how seafarers identify coastal sites and navigate between them, and it reinforced the importance of known site approaches and general topographic considerations.

Investigation of the case study sites comprised further desk-based study of publications, the SMRs, and cartographic sources. In addition, a programme of fieldwork was undertaken at each site incorporating topographic survey, geophysical survey, and, at Poole Harbour and Bigbury Bay, excavation. The methods employed at each site are detailed in the relevant chapters and appendices. The fieldwork was originally planned to commence in the summer of 2001 but, due to the outbreak of Foot and Mouth disease, it was not possible to undertake any fieldwork that year, reducing the time available for the field investigations. All elements of the fieldwork programmes were planned and directed by the writer with (occasional) guidance from specialists at Bournemouth University and, for work at Bigbury Bay, the Devon County Archaeological Service. The excavation teams comprised volunteers from the student body of Bournemouth University, local archaeological societies, and other individuals. A specific part of the extended investigation of Green Island in Poole Harbour was undertaken by 'Time Team' to a plan of work agreed with the writer. All elements of the investigations complied with relevant IFA guidelines.

The desk-based studies and fieldwork surveys were designed to achieve the objectives of this research project. The research reconsidered known sites and undertook new work, including field investigation, at other sites. The model of characteristic physical traits was tested by the three case studies to develop the current understanding of the nodal sites of the along- and across-Channel networks that were used between 500 BC – AD 40.

The main outcomes are the identification of possible Iron Age coastal sites, an overview of coastal site distributions, a comprehensive gazetteer of known and potential sites, and the development of a new model for coastal site interactions drawing on earlier theories including a gateway model, with port of trade and central place roles. The results of the investigations provided new data to apply to our understanding of Iron Age coastal sites.

1.3 Thesis structure

The main emphasis of this study considered the English Channel coast in order to construct a model from which Iron Age coastal sites (nodes) can be identified, to apply that model to the coast (Chapters Three, Four and Five) and to test the model by case studies (Chapters Six, Seven and Eight). Subsequent discussion (Chapter Nine) outlines a further model of possible interactions within and between the identified nodes which indicates how the data compiled in this study might be used in future work.

Structurally, this thesis divides into the following blocks:

1. Introduction to the topic and mechanics of approach and presentation (Chapter One)
2. Background to the study of the topic and the evidence used (Chapters Two and Three)
3. The construction of a model to identify and characterise Iron Age 'nodal' sites (Chapter Four)
4. The application of the model (Chapter Five)
5. Detailed case studies, including fieldwork reports, to test the application of the model (Chapters Six, Seven and Eight)
6. Presentation and discussion of the results, a model of 'nodal interactions' and conclusions reached (Chapters Nine and Ten).

Chapter Two considers the theoretical context of the study with a review of the evolution of Iron Age studies, with particular emphasis on cross-Channel relationships and the role of the English Channel as either a barrier to or facilitator of communication and interactions. These Iron Age studies have been concentrated on invasions, migrations and trade as mechanisms for along and across-Channel contacts. This chapter makes use of material from classical sources to the most recent works relating to Britain, north-west Europe and the Mediterranean. It reviews the methods and arguments that have been employed in the continual process of developing an understanding of Iron Age societies and sites, and approaches to them.

Chapter Three examines the many strands of evidence relevant to this study that derive from terrestrial and marine archaeology and geography. It reviews the development of the English Channel itself to provide the physical context for the study. Although sea-level is generally known to have been lower than today, the rate of change and so relative level of the sea varies dramatically along the coast. Therefore sea-level is considered separately at each proposed site location where datable levels are available, or where the methods of Waddelove and Waddelove (1990) and Toft (1992) can be applied.

The postulated Iron Age sites are determined not just by evidence from the land. All vessels require 'safe havens' at points along the coast and the natural and artificial features that create those conditions are fundamental to the identification of coastal sites. A review of contemporary vessels and voyage capabilities creates an understanding of the type of facilities that would have been required at a coastal site, including beaching hards, jetties and quays. Further maritime considerations useful in this process include contemporary navigation issues and patterns of tide and weather. From these considerations, further site identification criteria have been drawn. Evidence from previous studies of artefacts and their distribution is considered in sections on possible maritime routes, artefact distributions, wrecks, and excavations with detail included from classical sources.

The compilation of all the strands of evidence results in the determination of three distinct zones of contact – south-east, south central, and south-west – each with different cross-Channel route foci, and each corresponding to a different topographic area. These three sectors form the basic units for further consideration of the Channel coast in Chapter Four.

From the evidence presented, a list of the physical traits that might characterise Iron Age coastal sites is developed in Chapter Four, based on geographic as well as archaeological evidence at the coast and also relating to sites and land use in the coastal hinterland.

The evidence and material outlined is applied in Chapter Five and Appendix One in a review of the Iron Age coast, sector by sector, and county by county within each sector, considering sea-level changes, identifying the likely site locations from the application of the traits list, and presenting the evidence for each. The various approaches resulted in a list of 40 sites that were classified as definite, probable and potential. 'Definite' sites are known, from established study, to have been used as coastal sites in the Iron Age. 'Probable' sites exhibit the physical traits and have other evidence, such as contemporary imports, to suggest a functioning coastal site. The 'potential' sites match the physical characteristics but to date have not been investigated or have no other evidence to suggest their Iron Age use. Each of the 40 sites is detailed in a gazetteer which is presented as the main appendix of the thesis. Of the 40 listed sites, 30 have some or all of the complex elements within the five kilometre radius (Table 6).

To test the application of the model comprising physical traits and landscape elements, three case studies, one from each site class, have been examined in detail. These are Hengistbury Head (Chapter Six), Poole Harbour (Chapter Seven), and Bigbury Bay (Chapter Eight). All these sites were investigated by desk-based study and fieldwork, including detailed geophysical survey, and Poole Harbour and Bigbury Bay were further investigated by sample excavation.

The thesis develops and applies a method for identifying Iron Age coastal sites, from which a new perception of the coast at that time emerges. In Chapter Nine the proposal is set out that instead of a few isolated major sites, of which Hengistbury Head and Mount Batten were the main examples, the picture was rather of a coastline with a range of sites of different sizes, performing different roles in a network which reached across the Channel, along the coast and inland via river and overland routes. However, these sites did not operate as isolated units but were integrated into the social landscape and contemporary networks. By incorporating theories relating to sites and societies the interactions are considered in two ways. The first is the immediate vicinity (within five kilometres of the coastal site) where a 'complex of elements' can be identified. These elements are considered individually, with possible roles within the complex and relationships to the coastal site suggested. The second is the 'node' role within the maritime network, exploring models of possible interactions at local, regional, and international scales.

The gazetteer (Appendix One) lists each of the 40 sites identified as 'definite', 'probable' or 'potential' Iron Age nodes on the English Channel coast and complements the information presented in Chapter Five. Each site entry contains, as a minimum, topographic and geological information, a summary of the known archaeology at the site and/or in the surrounding five kilometre area, the reason/s why it is suggested as a coastal node, and an annotated aerial photograph. Where possible, additional detail is provided in the gazetteer and Chapter Five that was acquired from site visits, sea-level studies and other sources. The gazetteer provides a detailed data corpus for future studies.

The thesis concludes by revisiting the initial aim and questions, and reviews how these have been answered and how the study contributes to future research on, for example, maritime connections and relations to the interior. It is clear that a variety of sites were located along the coast that operated at different scales and offered different facilities. The emerging picture of the Iron Age coast can now be seen as a more complex picture than just a few large sites as arenas for social and economic interaction.

Chapter 2

The earlier study of interactions along and across the English Channel

2.1 Introduction

This chapter reviews previous archaeological investigations, interpretations, and theories relating to coastal sites and interactions in order to provide a context for the current study. Since earliest times, interaction between Britain and the continent has been an object of fascination and archaeology has taken this up. Early archaeological studies of the topic were dominated by theories of invasion, migration and trade. Archaeologists also place emphasis on references in Classical literature to cross-Channel contacts: archaeological investigations recovered the goods that crossed the Channel and inferences were made regarding the movement of people as well – either carrying the goods as personal items or as trade stock.

Until the start of the twentieth century, attention focussed principally on similarities in the artefacts found on either side of the Channel and developed invasion- or migration-based explanations to account for these observations. The first academic interest in port sites on the south coast was in the early twentieth century when investigations by J P Bushe-Fox at Hengistbury Head concluded it had been a pre-Roman port. This was the first time such a site had been identified in southern Britain. Since that time, until the most recent studies, investigations in general have concentrated on the study of artefacts and social and economic theories to account for their movement. These theories, as outlined below, frequently seem to reflect the contemporary social and political situation. The result of this is that there is much material related to the artefacts exchanged along and across the Channel, and mechanisms to account for that movement, but until recently there has been little information regarding the physical conditions of maritime interactions on the English Channel and the sites of those interactions.

The general impression of the Iron Age in Britain was formed mainly from early studies in Wessex and south-east Britain and was essentially a 'land-based' view dominated by models that in modern terminology would be described as 'core and periphery'. The study of Wessex gave a heavy emphasis to hillforts whereas material from south-east Britain stressed Belgic incursions/invasions and the alignment between that region and an increasingly Romanised continent. Recently, the perception that this engendered, which could be seen as imbalanced, has been dismissed and new approaches to the Iron Age are advocated (including Hill 1995a; 1996; Haselgrove et al. 2001). One particular approach is to study those regions outside south-east Britain to investigate the differences between them. In this study, the emphasis has been on the south-west sector, considered as having received little Iron Age research (Haselgrove et al. 2001, 24; Table 3), and the central coastal sector.

The models developed in the past have both imposed constraints and created opportunities for the way in which the material can be studied. Here, considerations of material pre-500 BC are included as background to the studied period. Models relating to prehistoric periods other than the study topic are reviewed as they can also shed light on the late Iron Age, although this chapter is necessarily selective. It draws on material from Bronze Age and Iron Age studies, social and economic theory, maritime archaeology, geography, and models developed for other periods and other areas that provide valuable comparisons with the English Channel in the Iron Age.

2.2 The source material

The written record of maritime interactions and Iron Age seafaring in the English Channel begins with the contemporary accounts found in classical sources. The texts of Pytheas, Avienus, Caesar, Strabo, Diodorus, and Ptolemy are of particular relevance and value to this study, with direct references to trade, shipping and coastal sites in the English Channel. The evidence from classical texts is discussed in Chapter Three.

The study of along- and across-Channel interactions developed and evolved within the discipline of archaeology, reflecting contemporary concerns and modifying former models. A review of the key stages of the development is outlined below.

2.2.1 Origins: late nineteenth – early twentieth centuries

During this period, archaeology emerged from antiquarianism as a scientific discipline, and drew on the contemporary developments and theories of other scientific investigations. In 1859, Charles Darwin published his new theories on the evolution of species and the evolutionary concept was soon mapped to archaeological study to create almost Linnaean 'typologies' of objects. In Britain, the pioneering study of Sir John Evans (1881) was key to the foundation of cross-Channel parallels in archaeological thought. Using artefactual evidence from the closely related British and French bronze industries, he was the first to employ the principles of cross-dating to cross-Channel material and produced a chronology for the British Bronze Age. This set Britain within a wider north European context based on artefact similarities. In Europe, type series were also being developed. For example, Reinecke (1902) studied artefacts from funerary contexts and hoards in Bavaria to complete a later prehistoric chronology. This included material defining the Hallstatt period. The basis for both these studies was the use of artefact typologies and sequences from which relative chronologies were extracted.

Alongside the developments in determining archaeological chronologies, the burgeoning nineteenth-century interest in, and exploration of, different lands and peoples led to the foundation of the disciplines of economic and social geography. These considered how aspects of geology and topography had influenced human history. Cross-Channel parallels in the people and the land were a focus of study that was adopted in the considerations of Evans and others. Social geography and archaeology were separate disciplines with their own methodologies and theories, but they reached the same broad conclusions regarding the interpretation of perceived similarities across the Channel. This was the start of structured consideration of places as influences on human action, and of human action as a determinant of how places are used.

Throughout these formative years of the archaeological discipline, attention was almost entirely devoted to artefacts and sequencing typologies and chronologies. Little study was conducted into the economies or societies that produced the goods nor the types of sites used for trade or general coastal interactions. However, the recognition of cross-Channel similarities in economic/social geography influenced archaeological consideration of such interactions in prehistory. In 1890, an Iron Age cemetery at Aylesford was excavated (A Evans 1890). This was unusual because most excavations of Iron Age sites were of settlements and hillforts, and also because in his report, Arthur Evans considered the society which populated the cemetery. He recognised that the artefacts and styles within the cemetery were not like other assemblages from Britain. He made the connection hinted at by social geographers and in the work of his father, John Evans (1881), that the similarities lay across the Channel. Arthur Evans (1890) linked the Aylesford community with the Belgic invaders who classical texts reported had fled Gaul to settle in southern England (see Chapter Three). From this, future archaeological studies proceeded to consider the English Channel as a facilitator of contact between people.

The early twentieth century was characterised by a climate of imperialism, war, and fears of invasion. Within this, the classical conviction of '*ex oriente lux*' held sway: 'civilisation' emerged from the south-east toward the north-west and ideas were spread by diffusion as well as waves of invasion and immigrants. One of the emerging interests of the time was to use the scientific study of objects to identify how and where iron was first used in order to provide a marker for the beginning of the Iron Age. The emphasis was on the Near East and Mediterranean areas. However, in 1905 R Smith undertook the first analysis of British objects from the Iron Age (two currency bars) to determine their source. (By 1970, analysis of only 12 British Iron Age iron objects, including those two, had been completed (Ehrenreich 1985, 1).) If the source of an artefact could be identified, the route to its deposition might be inferred. This general assumption forms one of the methodological approaches to later prehistoric material used as evidence in this study – to determine the routes of objects as evidence of routes of trade and links between sites.

The parallel development and conclusions of archaeology and social geography continued from the nineteenth into the twentieth century. Having begun his study some years before, in 1902 H J Mackinder published his key work, *Britain and the British Seas*. He recognised that the physical location of Britain put it at the margin of the social and political world. (This notion of marginality or periphery was to receive much attention in archaeological models constructed some decades later.)

Mackinder named the English Channel as part of the "Narrow Seas" (1902, 24) but seemed undecided whether the insularity it marked was of benefit or hindrance to inhabitants of Britain (1902, 15). The dilemma of whether the Channel was a barrier or a link was to preoccupy archaeologists throughout much of the twentieth century.

By studying the people and places on either side of the Channel, Mackinder saw similarities that archaeologists would later exploit to recreate models for prehistory. For example, he considered the people of Cornwall and Brittany to be alike both physically and ethnographically, whilst inhabiting similar lands either side of the Channel that were behind a "broken, dangerous coast ... full of harbours" (Mackinder 1902, 19). How those harbours might have interacted and been used was left for future study.

2.2.2 Invaders or traders: *c.*1915 – 1950s

The pre-war years saw the emergence of regional studies and some major excavations that retain their prominence as 'type sites' today (e.g. All Cannings Cross (Cunnington 1923) and the earliest south coast 'port' study at Hengistbury Head (Bushe-Fox 1915)). Bushe-Fox's work at Hengistbury Head, one of the main sites of this study (see Chapter Six), concentrated on the major features and artefacts. From this excavation, Iron Age and Bronze Age pottery, worked flints, and other artefacts were recovered. Many of the artefacts were recognised as continental imports and Bushe-Fox (1915) interpreted Hengistbury Head as a site physically suited to, and heavily involved in, maritime trade with the continent. However, it is generally accepted that Bushe-Fox's work was highly selective and tended to focus on the recorded burial monuments, so leaving the possibility of further occupation evidence in the area.

Alongside this, the work of both Sir John and Sir Arthur Evans in postulating links across the Channel was taken up by Breuil working in France. Between 1900 and 1919 he published a series of works confirming and developing the nature of this relationship of social interactions. These were based on his extensive studies of bronze artefacts from the Paris Basin area. OGS Crawford (1913) also contributed to the evolving scenario with a paper in the same French journal, *L'Anthropologie*. Concentrating mainly on the Bronze Age, he suggested a broad scope for trade, or 'peaceful intercourse' through later prehistory between Britain and France. These examples illustrate how trade was perceived as an appropriate model for the movement of goods but attention focussed on the goods themselves, not the sites that they passed through.

In the inter-war years perceptions changed with a shift away from 'trade' models. The political climate of the time is often reflected in contemporary theories and it is perhaps not surprising that archaeologists proposed invasion scenarios in their interpretations of prehistory. These particularly affected the Channel regions. Excavations resumed after the First World War and more material was available for study. Contemporary writers were convinced that warrior invasion or mass migrations of groups fleeing uncomfortable conditions in their homeland were the means by which material crossed the Channel. This was a shift in emphasis from the movement of goods to the movement of people and this is illustrated in Crawford's (1922) statement, offering altogether a different tone from his 1913 paper, that the changes associated with the beginning of the Late Bronze Age in southern Britain were the result of an invasion of people across the Channel from north-east France. Crawford examined many different aspects of the archaeological record, especially artefacts, and proposed relationships between them, using material from the Llyn Fawr hoard to provide comparative dates. He covered much of France and southern Britain in developing his complex of relationships. He stated the entire complex was the result of Celtic peoples from the west Alpine area moving through France and invading southern Britain during the eighth century BC. Despite his preoccupation with invasion, Crawford was instrumental in developing the idea of the link (whatever its cause) between southern England and northern France that underlies all considerations of cross-Channel relationships.

Since the work of Fox (1923) in the Cambridge region, scaled distribution maps have had wide and continued use in archaeology. Artefacts were associated with particular cultures or groups and distribution maps also related the artefacts to space and place, thereby relating the cultures/groups associated with the artefacts to geographic locations. Patterns emerged but these could still be interpreted either as patterns of artefacts rather than patterns of people. For the earlier first millennium BC, E Estyn Evans reviewed Crawford's invasion evidence and placed the 'invasion' event 200 – 300 years earlier at *c.*1000 BC. This allowed a later, different, Hallstatt invasion to account for the start of the British Iron Age (Evans 1930). Evans' work included the production of distribution maps of some of the classes of object, including Carp's Tongue swords and winged axes that he found to be integral components of assemblages in southern England and northern France. He further demonstrated that other artefacts, including two types of knife, were exclusive to these areas and distinct from the assemblages associated with the 'Lake Villages' of Crawford's (1922) invading group.

1930 also saw the publication of Gordon Childe's *The Bronze Age*, a singular work of synthesis that considered the period as a whole. Childe used artefactual evidence to postulate models of economy and society, as well as considering what impact the artefacts – particularly the bronze metalwork – could have had on the social groups. This work was pioneering: Childe took the evidence of the known – the artefacts – and speculated about what was then considered unknowable – the people, societies, and economies within which the artefacts were generated, used, and deposited. He integrated society, economy, and technology – something not previously attempted – and provided artefacts with a purpose beyond their utilitarian function and distinct from the 'art-historical' approach. He argued that bronze-working was a full-time, specialised activity undertaken by individuals freed from the food production process. This would have required a surplus in food production or supply, and a social mechanism to control supply and distribution. This model of surplus and specialisation was to remain current and unchallenged through the following decades.

Such all-encompassing studies have rarely been presented until more recent times, and Childe's work remains an important collection of data and provides insight into potential economic patterns. It was one of the first to use artefact studies for anything other than typological or functional considerations: the study of objects, and particularly the movement of objects, was emerging as a means of studying the implied social changes.

This period also saw the development of Sir Arthur Evans' earlier work at Aylesford (1890). Following his excavation and study of the artefacts from Hengistbury Head, Bushe-Fox reported on investigations at a cemetery at Swarling (1925). The resulting 'Aylesford-Swarling' culture was distinct from the 'native British' groups and gave further credibility to the claimed Belgic invasion. In addition, this reinforced the further study of cross-Channel contacts and movements, although heavily biased to invasion rather than trade. It was during the 1920s that Gordon Childe adopted the anthropological term 'culture' for archaeological groupings of "certain types of remains – pots, implements, ornaments, burial rites and house forms – constantly recurring together. Such a complex of associated traits we shall term a 'cultural group' or just a 'culture'. We assume that such a complex is the material expression of what today we would call a 'people'" (Childe 1929, v-vi). 'Culture' is still a favoured term to classify material and attribute assemblages to groups of people. It had a major impact on how archaeological material was grouped and what interpretations were made regarding the people and interactions between them.

Iron Age studies of the 1930s were primarily concerned with the Belgic invasion of Britain, specifically in the east and south-east of England (see Hawkes and Dunning 1930 – a rare study of Britain and France together). Archaeological evidence such as that from Aylesford and Swarling seemed to show a complete La Tène III cultural 'package' of cremation, wheel-thrown pottery, and typical metalwork, that could be interpreted as evidence to endorse Caesar's report of a Belgic migration to Britain (see Chapter Three).

Another of the key works in the study of British prehistory, Cyril Fox's *The Personality of Britain* (Fox 1932), also made much use of distribution maps and illustrated movements of people. The work went through several revisions and the front cover of later editions showed the seas around Britain criss-crossed with arrows indicating the "routes into Britain of traders and invaders" (e.g. Fox 1943). The illustrated routes were useful as they suggested landing areas that may have been utilised by prehistoric traders (Figure 2). The influence of geographical studies was evident from the extended title of this work and throughout its content. Fox drew heavily from geographic principles to describe the physical setting of Britain and its internal structure, and how this may have influenced the inhabitants. His study was structured around the different geographic zones of the country (an approach that has also been found to be valuable in this study) and environmental concerns of climate, flora, and fauna to consider the influence these had on prehistoric people.

One of the major debates regarding the use of the English Channel in prehistory was whether it served as a barrier to interactions or a facilitator, or corridor, of communication. Fox's work (1932) integrated concerns of archaeology with the study of places as earlier expounded by Mackinder (1902). Fox discussed geographical factors influencing distributions of people (via invasions) and their cultures. He noted that for migrating/invading groups, sea-crossings offered "a line of least resistance or greatest opportunity" compared with movements over land (Fox 1943, 10). He proposed four major routes of contact between Britain and the continent, one of which was across the Channel. Fox defined two types of "incomer" into Britain. One group consisted of those for whom the sea was a barrier (they settled in eastern and southern Britain); the other comprised those for whom it was a "highway", who tramped the Atlantic coast from Portugal, Spain, and France, and crossed to land in Cornwall (*ibid*, 22). The Atlantic route and connections he suggested drew on the route detailed by Pytheas that was later adopted for study by Professor Barry Cunliffe (2001b).

Fox did consider Britain in the context of wider European trade networks, but did not assign it much importance in those, at least not in the Bronze Age (Fox 1943, 11). He stated that the inadequacy of sea transport[3] prohibited the mass influx of people, and so preserved variant elements within the British culture, rather than Britain merely being an overseas appendage of a continental complex (*ibid*, 19). Fox did not perceive Britain as a continental periphery. However, he did give some attention to the places of trade when he stated that Bronze Age Breton traders frequented ports on the English south coast just as the later Veneti did, and both groups probably used the same harbours to start from (*ibid*, 23). Using that proposition, it may be presumed that they may also have used the same harbours to head to. Not only is the identification of the coastal sites crucial to this study, but so is the consideration of the continuation in use through the Iron Age period of routes and networks established in the Bronze Age.

The data Fox presented to support his inferences of invasions and migrants were valuable indicators of potential routes and coastal sites considered within this research. In the course of his discussions, Fox specifically mentioned Christchurch and Weymouth (1943, 15). These areas continue to be emphasised through the decades of subsequent writings (e.g. Hawkes 1953; Rowlands 1980; Davis 1997) but, with the exception of Barry Cunliffe's excavations at Hengistbury Head (1987), there has been little further investigation of these places. It is part of the objectives of this study to consider further some of these other coastal sites.

Fox considered the physical nature of the British coast (1943, 87) – the position of Britain, adjacent to Europe and separated by only a short sea-crossing, made it susceptible to invasion from the continent. The indented coastline, with deep estuaries and slow-moving rivers for penetration inland, made convenient harbours for invaders (*ibid*, 23). Of course, what Fox saw as convenient for invaders was just as useful for traders. It is this mix of topographic consideration and archaeological data that underpins the methodology of this research into the location of coastal sites.

Ten years after his study of the Bronze Age, Childe (1940) published an account of the *Prehistoric Communities of the British Isles*, another major synthesis. In this he provided detailed descriptions of the evolution of various bronze types, and even credited some of the developments to imports, describing circles of trade between Britain and the continent. However, he too saw the majority of innovation as initiated by invaders, including the introduction of Carp's Tongue swords originating in the Rhône Basin and carried across the Channel by invading hordes (*ibid*, 172), and later La Tène innovations that arrived via a "complicated series of invasions, following devious routes" (*ibid*, 228). Despite persisting with the dominant theory of the time (invasion), Childe's work illustrated the shift in perception to the English Channel as a link, facilitating access across the Channel.

Crawford, Fox, and Childe based their interpretations on artefacts. They inferred links through time from an evolution in style and form exhibited in the ceramics and metals that they studied. Any break in the continuum was interpreted as a break in the dominant culture – a break credited to invaders. Childe acknowledged this by stating that "the break which divides the Middle from the Late Bronze Age has led Crawford, Fox and others to postulate an invasion – generally from Central Europe – to account for the innovations described" (Childe 1940, 176). Childe admitted that the innovations were not local, but must have been introduced by an "actual influx of expert craftsmen" (*ibid*) or by insular metalworkers learning from immigrating practitioners of the 'new' processes. Although this may be a move away from 'invasion', it still requires a movement of people rather than ideas and goods that could have been distributed via the sites of interaction and trade.

Bronze pins found in a ceramic pot at Ramsgate were identified as originating in Picardy (Hawkes 1942). Hawkes interpreted this as evidence of a 'migration' of groups from France to Britain in advance of pressures from the expanding Urnfield

[3] Although later prehistoric vessels are now known to be of sophisticated forms (see Chapter Three).

cultures. Hawkes proposed that it was these immigrants who brought the material and cultural package that was seen as defining the British late Bronze Age I. A second wave of immigrants, from the areas with the Carp's Tongue sword tradition, left their continental base to escape the encroaching Hallstatt influence. The groups arrived in Britain *c*.750 BC and started the British late Bronze Age II as a precursor to the ensuing Iron Age (*ibid*).

Hawkes' work was significant in two respects. First, it showed a shift in thinking from 'invasion' to 'migration'. Second, it took a broad view that considered the flow of events on the continent reaching across the Channel in a ripple-like manner. The principal focus was presented as a movement of people rather than a distillation of ideas and movement of goods.

These models suggested that throughout prehistory Britain was host to continental immigrants who were responsible for the social and technological changes observed in the archaeological record. Invasion theories developed during the early twentieth century were widely accepted and had a long currency of use. Native British people were not granted responsibility for innovation, but were presented as passively adopting what immigrant groups brought to them. Childe suggested immigrants brought the knowledge of and technology for iron-production and iron-working to Britain in the fifth century BC. The ensuing freedom from elite manipulation of bronze supplies was seen as a democraticization of society (Childe 1942, 182-3).

Despite the variety of interpretation during this period, significant sets of data were amassed, and ideas concerning the movement of goods in to/out of Britain were developed. The distributions of artefacts and routes along and across the Channel that were postulated form part of the corpus of material considered in this study.

2.2.3 Economy and society: 1950s – 1970s

From the earlier studies of artefact typologies, distribution maps, and invasion theories, archaeologists in the post-war period began to apply models of economy and society to the production, movement, and deposition of artefacts. Economic and social contexts were sought for the artefact studies (e.g. Clark 1952) and modifications were proposed to existing chronologies and frameworks. Significant among these was Professor Hodson's (1960) challenge to the 'ABC system' for the Iron Age in which he argued for characterising regional groups by their material culture rather than geographical frameworks (see below). Christopher Hawkes (1959) had adopted the prevailing view in proposing that material assemblages were linked by similarities in their cultural affinities, and had further proposed that the sites where the material was found were similarly grouped as A, B, or C. In this way, the extent of the distributions of the material groups was seen as the extent of the distribution of the cultural group: distributions of material in both Britain and Europe were interpreted as evidence for invasion into Britain. Hawkes (1931; 1959) perceived developments in the British Iron Age as the results of a series of migrations from the continent.

Invasions were still current explanations for change when the Iron Age and Roman Research Committee of the Council for British Archaeology was formed. This was initiated in December 1958 at a conference entitled 'The Problems of the Iron Age in Southern Britain' (see Frere 1961a), which led to a distinct change in approach with contexts of economy and society sought. The first Belgic invasion, pre-Caesar, was dated to *c.*75 BC and was increasingly viewed as a "folk movement" (Frere 1961b, 84). However, Frere could not determine the factors or pressures that would have been necessary to initiate the movement of people. He considered the introduction of chariots to Britain from Gaul and concluded that the invasion of Britain must have occurred whilst they were still used in Gaul. Chariots were not mentioned in Gaul by Caesar at the end of the first century BC, although he recorded them in large numbers amongst the Catuvellauni in Britain. They were depicted on Gaulish coins until *c.*100-90 BC, so Frere concluded that the first Belgic invasion occurred at or before that time, approximately 30 years earlier than the then accepted date of 75 BC (*ibid*, 85).

The continued fixation with the Belgic invasion, knowledge of which was based on the classical references (particularly of Caesar and Strabo), preoccupied archaeologists to the detriment of alternative theories and took precedence over any consideration of alternative reasons, including trade, for the movement of goods and people in the Iron Age (see Haselgrove 1984; 1987; Fitzpatrick 1990, 9).

The preference for quantitative methods of ordering data was evident in the production of the *Map of Southern Britain in the Iron Age* (Ordnance Survey 1962). Despite the challenges to the ABC system, the map and associated text linked geography with cultural affinity based on that system and its fundamental assumptions regarding the Belgae: as the Belgae, Iron Age C, were not known to have built hillforts, the structures were therefore dated to the earlier Iron Age A and B phases (Rivet 1961, 30).

In 1964, a conference on Iron Age topics held at Rennes in Brittany proved to be a turning point for Christopher Hawkes and his interpretation of the period (see Hawkes 1972, 10-11). As detailed in his earlier work (1959), he had seen the main developments in the British Iron Age as results of mass invasions/migrations that brought a cultural 'package' into the country. Now this was revised to view industrial and technical development as a process, not a package brought by immigrants. The archaeological evidence, according to Hawkes, did not reveal a 'package', but implied a trail of associations that archaeologists should seek to link. He did allow for a "flight of Belgic Gauls from Caesar" as a special case that revealed an immigrant burial tradition (Hawkes 1972, 11). However, this was a subtle shift from the passive acceptance of change from outside to the instigation of internal processes of change in the British Iron Age (as later advocated by Fitzpatrick (1993, 241)), although the emphasis was still on considering artefacts rather than places.

Hawkes' shift was mirrored by other changes within the discipline: archaeologists began to consider systems at work within societies, such as the nature of trade and exchange. The invasion model was being broken down in other ways. Jope (1961) recognised that the finest Iron Age metalwork in Britain was non-functional parade equipment, not suitable for use in warfare but more appropriate in stable socio-political conditions. He suggested that archaeological evidence to support invasion theories would have to show more robust fighting or utilitarian equipment rather than brooches and ornaments that were "just as likely to have been objects of minor trade or barter" (Jope 1961, 69). The transition from theories of invasion to models of trade was highlighted and concluded in the debate between Clark (1966) and Hawkes (1966). However, there was still little detail sought of the places and types of site where trade and other coastal interactions might have taken place.

The variety and scale of published studies at this time led to a review of recent works by Colin Burgess (1968) in his comprehensive study of the late Bronze Age of Britain and north-west France. At a time of increasing political integration between the two countries, he stated that the "problem of links with France has long been neglected" (Burgess 1968, 1). Concentrating almost entirely on the study of metal artefacts, Burgess concluded that south-east England was conceptually closer to north-west France during that time than to the rest of Britain (*ibid*). He developed the idea of cross-Channel parallelism from his study of late Bronze Age metalworking traditions that were divided into four phases on either side of the Channel. In so doing he discussed potential links and parallels between areas, but left the nature of the relationship, and how and <u>where</u> the links may have been forged, unexplored. Burgess was acutely aware of the importance of coastal and riverine distributions of material: the base maps for his distributions of various metal artefact types in the major British Isles comprise just the coastline and major rivers with no other topographic detail (Figure 3). However, Burgess' work received much criticism as further finds and advances in dating and analytical techniques shifted the structure of his chronologies (for example, Thomas 1989). Despite that, he had emphasised certain themes that remained credible, in particular the coastal and riverine distributions of material: these were no longer perceived as the result of raiders, but as routes for trade and exchange.

The debate over invasion/migration theories had diverted attention from the actual evidence (see above). The subject of study was the artefacts found away from their place of origin or manufacture, or distant from their 'normal' range of distribution. The emphasis was on attempting to account for how these artefacts may have arrived at their place of deposition – whether carried by invader, immigrant, or trader. Debate on this can be seen to reflect the contemporary social, political, and economic conditions and convictions of the protagonists. However, within that debate and the emphasis on artefacts, tantalising hints were made of the cross-Channel routes by which goods entered Britain, from which coastal sites can be inferred. For example, when addressing the 1949 conference of the Prehistoric Society in Exeter, Stuart Piggott stated that the amber recovered from graves in Wessex had come from Scandinavia via Germany (reported in Clark 1952, 264). This suggested a 'trade' route from Germany to Britain. Although the presence of amber has subsequently been attributed to other modes of movement, the link between 'exotic' artefacts and trade routes was made.

More specifically, whilst President of the Prehistoric Society, Professor Hawkes addressed the Isle of Wight Natural History and Archaeological Society on the subject of English Channel harbours used in prehistoric cross-Channel trade. The subsequent report (Hawkes 1953) was the first work dedicated to the coastal places of entry into Britain. Hawkes mentioned 15 areas or specific sites along the Channel including Hengistbury Head, Poole Harbour, and the Isle of Wight. Trade was presented as a feasible mode of creating the material and cultural changes observed in the archaeological record, and Hawkes' comments on trade routes and ports are still relevant. He also considered the effect of contemporary maritime capabilities when he stated that small boats leaving Brittany would have been unable to make for a Cornish port across the westerly winds, so may have first taken a shorter, more protected, crossing further east along the Channel and then continued their passage by tramping along the coast. Such considerations are examined in detail in Chapter Three. Like Fox (1932), Hawkes specifically mentioned Christchurch and Weymouth as likely destinations. By the Bronze Age, "harbours of the coast between the Isle of Wight and Portland were in active use for trade, and not only with the mouth of the Seine, but with the Cherbourg Peninsula and Brittany" (Hawkes 1953, 257). The larger, stronger vessels of the late Iron Age, he noted, would have been more capable of making the direct crossing (see also Davis 1997, 133). Hawkes' short address is fundamental to this study: it hinted at routes of trade, noted the advantages of riverine access, and even named areas or specific sites of coastal contact. However, there was no subsequent study of coastal sites as a group that Hawkes had perceived to be vital to understanding cross-Channel relationships.

Cross-channel similarities in artefacts and monuments continued to be interpreted in different ways, culminating in an exchange in the journal, *Antiquity*, between Grahame Clark and Christopher Hawkes (Clark 1966; Hawkes 1966) on the 'invasion neurosis'. By this time, alternative theories for the movement of goods and transmission of ideas were being proposed. Hawkes had previously perceived developments through the British Iron Age as mainly initiated by waves of continental immigrants (1959). His 'revised ABC' model accommodated regional groupings within Britain based on artefact studies. The regional approach was continued by Hodson (1960) but he based his groupings on the excavated type-sites, a distinct move away from the emphasis on artefacts.

A later study (Hodson 1964) presented the Iron Age as a continuation of indigenous Bronze Age culture, allowing for some contact with continental groups via trade but limiting the role of immigration. In this way, trade was used as an alternative explanation at this time, rather than a social/political/economic constituent. This was also based on a regional approach, and regional studies (e.g. Fox 1964; Calkin 1968a) continued from this time to pursue the importance of place. Attention had begun to shift from the main European Iron Age sites – principally the 'rich' La Tène and well known Hallstatt complexes – to areas that had previously received little archaeological attention. Regionality, brought to the fore by Hawkes (1959), was taken to a new level by Barry Cunliffe (1975) who, in a milestone work within Iron Age studies, presented a suite of 'style zones' based largely on ceramic evidence, but developing from Hodson's (1960; 1964) regional work. The increasing emphasis on regional studies was supported by developments in scientific analysis. For example, Peacock (1968; 1969) reported on the petrological analysis of Iron Age ceramics from western England from which subsequent economic explanations for their regional distributions were developed.

Cunliffe outlined his vision of the Iron Age as a series of themes – craft, industry, and art; settlement and patterns of economy; society and social change; continental trade and contact. In the latter, like Hodson, he perceived trade systems between Britain and Europe that were established in the Bronze Age continuing in the Iron Age. Cunliffe stated that there were both organised trade and other means by which goods could be imported into Britain, including folk movement, gift exchanges, and bride price (1975, 129). He made an important statement for the concept of this study when he wrote that "archaeological methods can seldom distinguish precisely between these systems" (Cunliffe 1975, 129). That was a direct continuation of Cyril Fox's earlier observation that it "is sometimes difficult to distinguish archaeologically between the effects of commercial infiltration and of invasion" (Fox 1943, 20). Both writers emphasised that it was possible to identify an import, but not necessarily by what mechanism (social, political, or economic) it was moved. This is crucial when considering the objectives of this study: it is not an attempt to recreate the mechanisms behind the movement of goods (loosely referred to as 'trade'), but to provide a physical context for their import or arrival in Britain. It is a detailed study of the 'where' as opposed to the 'how' of 'trade' and other coastal interactions.

A key paper in British Iron Age studies was presented by Timothy Champion who urged that "We must seek alternative explanations to the ethnic for observed distributions" (1975, 129). In this paper, Champion attempted to unite the invasionist and anti-invasionist studies by looking behind the polarised interpretations to the concepts on which they were founded – the grouping of material into cultures and ethnic units, and the similarities between cross-Channel groups. Champion sought to develop alternatives to the prevailing culture models for prehistory. His approach, of looking behind interpretations to seek new uses for the data on which they are built, was adopted for the process of this research.

This period saw a fundamental shift in interpretations of the movement of goods. The subsequent patterning of the archaeological record was very much a product of the archaeologist's methods (Renfrew 1978, 94-5), but vital as a tool to aide understanding, albeit via an artificial construct.

2.2.4 New perspectives: late 1970s – 1980s

From the 1970s onwards, new perspectives that emerged from the practice of 'New Archaeology' were evident throughout later prehistoric studies. The earlier emphasis on the study of artefacts was replaced during this time with environmental and settlement analyses as scientific techniques developed and ethnoarchaeological approaches were adopted. Model building became standard practice, heavily reliant on statistical analyses.

The movement of goods from source to place of deposition has been used in previous studies to suggest routes for trade (including Peacock 1984; Brun 1993; Allen and Fulford 1996; Pare 2000b), for example, tin leaving Cornwall for France, Armorican pottery found in southern Britain (Tomalin 1988), etc. However, the specific sites at either end of or along the routes have not been identified. Instead, general 'contact zones' are often presented. These zones suggest where coastal sites could have been located, but there has been little study to investigate where they might have specifically been situated.

Barry Cunliffe provided much of the data from Wessex excavations and developed subsequent models of social, political and economic organisation (e.g. Cunliffe 1978a; 1984c). He was instrumental in the shift during the 1980s to considering external contacts as factors influencing change. The 'core and periphery' models which had been developed in the 1960s were central to such explanations (e.g. Cunliffe 1988a). Whereas earlier invasion theories had postulated enforced change by external groups, the emphasis at this time was on contact and influence.

Sterud (1973) based his review of prehistoric archaeology on a contemporary model of change (Kuhn 1970). He argued that most prehistorians were bound by patterns in research, some developed in the nineteenth century, of chronology, typology, etc., but the discipline needed to evolve to encompass a new set of scientific standards. Those 'standards' were met as archaeology underwent the 'scientific revolution' and experienced the 'enlightenment' of radiocarbon dating and increased interest in environmental modelling. This resulted in an increase in the amount of empirical data available for interpretation and, subsequently, the adaptation of models and theories, including the mechanisms behind the movement of goods.

Sahlins (1972) presented a spectrum of exchange models to explain the movement of goods that were based on the degree of reciprocity – general, balanced, or negative. Economic considerations originated in social and anthropological models developed initially by ethnographic scholars including Malinowski (1961). These drew on the studies of Polanyi (1957) who had identified three methods for the movement of goods from one group to another:

- Reciprocity: between 'equal' points in balanced groups
- Redistribution: between 'unequal' points, to and from a 'centre'
- Exchange: bi-directional market system.

Polanyi (1975) later developed his models with the identification of three main types of trade:

- Gift trade
- Administered or treaty trade
- Market trade

(also summarised in Cunliffe 1988b, 4-6).

In 2000, Harding explored the history of study of trade links in the Bronze Age and concluded "it was unlikely that the more sophisticated forms of trading took place" (2000, 187). He considered that exchange was heavily grounded in reciprocity and the most significant models were 'down-the-line' and 'prestige-chain' exchange, with direct access to resources also relevant. This reflected the models of exchange systems that had already been developed by Colin Renfrew

(1977). Renfrew relied heavily on statistical analysis of artefact distributions, as was prevalent in the 'processual archaeology' of that time.

Renfrew sought to reveal "underlying regularities in the patterns observed" with the aim of "understanding the mechanisms of trade involved" and so gain "an insight into the economic and social processes at work in the society in question" (Renfrew 1977, 71-2). In his paper, Renfrew chose to distinguish between exchange, in which goods may not have changed hands, and trade, as "procurement of materials from a distance, by whatever mechanism" (*ibid*, 72).

Renfrew's model (1977) was based on earlier work by Ian Hodder (1974): the methods and conclusions of both were analysed, from an anthropological perspective, by J R Clark (1979). He used statistical methods to assess the distance decay of 'down-the-line' models to establish whether "mute" archaeological remains could reflect the contemporary trading systems. His conclusion that social complexity could be explained by statistical models gave validity to the prevailing reliance on statistics by archaeologists.

Renfrew's model proposed that in "circumstances of uniform loss or deposition, and in the absence of highly organized directional (i.e., preferential, nonhomogeneous) exchange, the curve of frequency or abundance of occurrence of an exchanged commodity against effective distance from a localised source will be a monotonic decreasing one" (Renfrew 1977, 72). In other words, the frequency of occurrence (finds distribution) decreased as the distance from the source increased.

The significance of the concept "effective distance" is important. Barriers to distribution, natural or artificial, increased the effective distance. Conditions that were advantageous to distribution, such as speedier, more efficient transport by rivers and sea, would decrease the effective distance while obstacles in terrain would increase it. This concept is of importance in this present study as an understanding of the relationships between interacting sites must give consideration to the 'effective distance' exhibited in the connecting networks and routes between them.

Frankenstein and Rowlands (1978), in their influential study of the early-middle Iron Age in Germany, emphasised the importance of exotic, prestige import items to create, maintain and enhance the social and political power of the chieftains there. Their conclusions highlighted the link between trade and social stratification and were reflected in the model of 'gateway communities' developed by Hirth (1978) which is discussed further in this study (see Chapter Nine).

Interpretations and theories developed in the 1970s and 1980s were mainly based in process-driven explanations. Detailed trade and exchange models were presented in considerations of prehistoric social and economic interactions. However, there was still little focus on the actual sites of interactions.

2.2.5 The current picture

The past 25 years have seen an enormous output of texts relating to sites, monuments, and artefacts of later prehistory, and interpretations based on those of the prevailing contemporary social and economic conditions / systems. This has in part been fuelled by the results of the increase in rescue and developer-funded archaeology. With more material available, wider studies were undertaken. In 1980, John Barrett and Richard Bradley both produced major contributions to Bronze Age studies. Bradley (in a volume jointly edited with Barrett) constructed a 'social framework' for the Bronze Age in southern England, uniting subsistence, exchange, and technology for the period 1400 – 700 BC (Bradley 1980). This was one of the few comprehensive undertakings since Childe's work (1930), and Bradley incorporated much of the newly available information to provide scenarios for Bronze Age trade. He evaluated Cunliffe's outlines of changes in the Iron Age (Cunliffe 1978b) and considered that the same factors might have influenced change in the Bronze Age (Bradley 1980, 64). The two periods were increasingly seen as a continuum rather than starkly distinct (see also Stig Sørensen and Thomas 1989; Thomas 1989). John Barrett (1980) produced a comprehensive work on the Late Bronze Age ceramics in south and east England. Confining his examination to material from the first half of the first millennium BC, he revisited the evidence used by earlier investigations that deduced invasion theories and detailed chronologies. Barrett argued that the chronologies based on such artefact sequences were not appropriate when integrated with other sources of evidence. They were isolated from the contemporary processes of communication, exchange, and competition (Barrett 1980, 298). Instead, Barrett outlined a 'bigger picture' incorporating these processes. Drawing on the work of Rowlands (1976a), he proposed two directions of cross-Channel contact during the period of his study. In essence these were (Barrett 1980, 315):

1. An eastern route that linked the Urnfield complexes of eastern France and central Europe, via northern France and the Low Countries (already identified as a gathering centre or 'eclectic region' by Smith (1959)), to eastern England.
2. A western Atlantic axis that simultaneously connected Ireland, Wales, and Brittany. (This would later become the focus of attention in Barry Cunliffe's researches.)

Coincidentally, these two axes are represented by the Bronze Age 'wreck' sites at Dover and Salcombe (see Chapters Three and Five) from which continental metalwork was retrieved.

During the later twentieth century, Britain was considered more integrally with the continent, and cross-Channel interactions began to receive attention in the exploration of relationships between communities on either side of the Channel. The models developed during this period have been used as the basis for understanding relationships between the sites identified in this study, and a new model is proposed in Chapter Nine.

For the late Bronze Age, Brendan O'Connor (1980) considered a variety of relationships by comparing the metalwork of Britain, the Low Countries, and north-east France. Although he did not consider trade as a specific mode of relations, his study is useful in the context of the present research for the sites he linked. A collection of papers (Macready and Thompson 1984) included considerations of pre-Roman Iron Age French and British material specifically related to cross-Channel trade. This was followed by Barry Cunliffe's exploration of 'social and economic contact' (including trade) (Cunliffe 1990a) of the same period between Britain and western France. Jacques Briard (1993) reconsidered the artefacts used in earlier studies (e.g. Piggott 1938) and identified similarities on both sides of the Channel within the 'Armorico-Wessex complex'. He confirmed a two-way exchange between Armorica and southern England (Briard 1993, 183). Among the examples presented were the biconical Breton urns found at Winterborne Stoke in Wessex (Annable and Simpson 1964, 105), and a small Breton vessel revealed in the barrow at North Down on the Isle of Wight (Basford 1980). Although Briard noted the areas of origin and deposition of artefacts, there was no discussion of the sites through which they passed from one side of the Channel to the other.

To move on from the 'sterile dichotomy' between theories of diffusion and independent development, Renfrew and Cherry (1986) proposed the notion of 'peer-polity interaction'. This examined the effect of sustained trading interactions between groups of similar political and social complexity. They concluded that, in general, such interactions led to a situation resembling the model of 'centre and periphery'. For Iron Age studies, John Collis (1984a) found diffusion and autonomy to be inadequate explanations. Instead of building new models, he proposed a combination of both with "ideas spreading from one area to another, with individual, unique reactions which produced a varied pattern of distinctive regional cultures" (Collis 1984a, 9). Collis' explanations of practical mechanisms at three levels of trade – long-distance, inter-regional, and local (see Collis 1984a, 15-18 for detail) underpin many of the considerations of this study (see Chapters Four and Nine).

Core-periphery models were not adopted for all cases. Andrew Fitzpatrick (1993) has asserted that they were not applicable throughout Iron Age Europe. Looking particularly at Rome as the core, he questioned why it would need imports from the 'barbarian' periphery. He suggested that there was no evidence of rapid industrialisation at the core (Rome) that would necessitate the demand of raw materials or people from the periphery (Fitzpatrick 1993, 235). Anthony Harding (1993) examined core and periphery models in relation to Europe and the Mediterranean in the Bronze Age. Just as Fitzpatrick (1993) concluded for the application of the models to Rome and the European Iron Age, Harding considered them to be inappropriate. Instead he suggested studies of regional economies rather than abstracted dependency models.

At the regional level, Mike Parker Pearson (1990) made a study of the Bronze Age pottery of south-west Britain. He found Cornish wares distributed through other areas of southern England (including Dartmoor, Wessex and Kent) and France. He concluded that these could have been exchanged via kinship or tribal alliances. He also proposed alternatives for the distribution of Cornish Bronze Age pottery (Parker Pearson 1990) that are useful to consider within this study. One alternative was that, rather than being transported as cargo, the vessels may have been containers for ships' stores that came to be exchanged whilst the carriers were fishing, trading in other goods, making alliances or marriages, or even as containers for returning the remains of the dead (*ibid*, 21). This provided a different way to consider the material of previous studies and suggested a broader background of possibilities for the distribution of artefacts.

Fitzpatrick challenged three assumptions regarding exchange (see Fitzpatrick 1993, 235 for detail). He suggested that it was erroneous to infer

- foreign contact is synonymous with trade
- Roman goods indicate trade with Rome
- the necessity of a 'balance of trade'.

These points are considered when examining the evidence from the sites in this study.

As well as core-periphery, other models were proposed at this time. In emphasising trade as a social and symbolic action rather than purely economic, Colin Renfrew (1993) considered the 'cognitive aspects' of trade. In that paper, he provided a background to the development of trade studies, particularly related to artefacts. From that Renfrew rejected the application of the 'World System' model to prehistory as advocated by Kristian Kristiansen (1987). The model was originally developed for eighteenth century AD trade between the West Indies and Europe (see Wallerstein 1974) when conditions, technology, societies, and economies were likely to be different to those of prehistory.

Renfrew opposed the "'post-processual' abandonment of scientific method" or the retreat into hermeneutic positions. Instead he advocated the maintenance of "well established frameworks of inference" to understand objects in society (Renfrew 1993, 8). He was clear that material culture had an active role in the social world and archaeologists must try to understand the social impact of prehistoric objects that are "agents of communication" (*ibid*). Renfrew stated that artefacts "form the natural starting point for most studies of prehistoric trade and exchange" (*ibid*, 14) and said of those artefacts that it "may be enough to ask some new questions in a fairly straightforward way, and to seek to answer them in adequate detail" (*ibid*, 8). The application of this notion to sites and places is embraced within this study.

There have been few archaeological studies of the English Channel compared with the amount of material produced regarding the Mediterranean during 'prehistory' (e.g. Braudel 1972; 2001; Horden and Purcell 2000). It is useful briefly to explore how the Mediterranean has been approached and what conclusions were reached regarding maritime interactions. Abulafia (2003, 26) recognised that the close proximity of opposing shores, despite the clear separation of open water between them, permitted different cultures to interact. He stated that all "seas both join and divide landmasses" (*ibid*). His observations apply equally to the English Channel.

The works of Fernand Braudel have been critically acclaimed as exemplary studies of the Mediterranean. His approach combined elements of physical and social geography with archaeology, in a similar manner to Cyril Fox's work (1932) forty years earlier. That approach informed the methodology adopted in this study. Braudel (1972) argued that physical geography shaped not just the land and sea, but the groups that lived on the Mediterranean shores: physical constraints determined human endeavour. He examined how contemporary societies interacted across the sea, and recognised that the ease of movement across the water facilitated trade, and cultural and political links between distant communities (a theme that recurred with Renfrew's (1977) determination of 'effective distance' and the advantages of water transport). That is very much a principle adopted in the present study.

Braudel's approach was adopted by Horden and Purcell (2000) who perceived the sea as a flexible link, enriching communities by the connections it enabled. Although writing specifically of the Mediterranean, their approach and ethos can equally be applied to the English Channel that, as will be shown, exhibits the same concept of diversity within unity.

A Prehistoric Society conference was devoted to the reconsideration of trade and exchange throughout prehistoric Europe (Scarre and Healy 1993). In the introduction to the resulting publication, Christopher Scarre (1993, 1) used a passage from Herodotus (*Histories* IV.33) to set out the key elements in the study of European prehistoric trade. Those elements are outlined here as they are considerations in this study of the places of coastal interactions:

- items could travel long distances without people moving as far
- many exchanges would have been symbolic or conceptual rather than purely commercial
- the nature of contacts would change over time
- the origins of the goods may be obscured, but this may have enhanced their value and prestige.

Scarre reinforced Marcel Mauss' assertion (1969) that a purely economic approach to exchange will not account for the significance of such transactions.

As with other studies of this time, the aim of the conference (Scarre and Healy 1993) was an attempt to move trade and exchange studies forward to a new sense of comprehension – to begin to look at the topic not just in simplistic models for the movement of goods from A to B, but imbued with social meaning and significance, and to ask 'why did it happen?'. By studying the places of these interactions, it is hoped here to provide some detail on the arena of those interactions – to consider 'where it happened'.

The most recent studies are expanding the theoretical diversity evident at the end of the twentieth century (see Hodder 1991) and integrating studies of landscape and place. Barry Cunliffe's ongoing investigations are of 'Atlantic' societies rather than specifically English Channel/southern England/north-west France (Cunliffe 1982b; 1988b; 2000; 2001a). In a reaction against some of the interpretations of Cunliffe and others, Iron Age studies have also been approached from different perspectives to consider alternatives to models of hierarchical societies and the dominance of hillforts (e.g. Hill 1995a; 1995b; 1996; Hill and Cumberpatch 1995). For Bronze Age studies, similar theoretical developments are apparent, although Anthony Harding stated, perhaps ruefully, that a "fully post-modern approach ... is yet to come" (Harding 2000, 8). For Harding 'archaeological facts' equated with 'artefacts' and he considered, for the Bronze Age at least, that "artefacts constitute the source material" with which the period is to be studied (*ibid*). It is the purpose of this study to provide a large-scale physical context for those artefacts.

Despite his assertion, Harding did not "deal much with artefact typology or chronological analysis". Instead he took an "inclusive approach" to Bronze Age studies in an attempt to reveal the origins of the complexity evident in these societies (Harding 2000, 21). Earlier models, which were rooted in processual adherence to artefact analyses to generate satisfying archaeological results, have now become less popular. Instead the emphasis has shifted to the context in which the artefacts occurred. This study follows this shift in emphasis by researching the physical places associated with the socially constructed transference of artefacts.

A conference held in Birmingham in 1997 brought together the study of artefacts (mainly considering bronze items) and studies of the economies in which they circulated (see Pare 2000a). In the introduction to the ensuing publication, Christopher Pare explored the meaning of the term 'Bronze Age' (Pare 2000b). He attempted to define the period not only by the use of bronze at that time, but by considering how its adoption changed the economic and social systems in Europe and beyond. This typifies the current approaches that seek wider contexts or explanations for the movement of goods.

Pare supported Kristiansen's model of the 'Bronze Age hypothesis' (Kristiansen 1987) – that the desire or necessity for bronze created a demand for tin that was satisfied by a large increase in exchange controlled by the emerging elites. Pare stated that the bronze exchange network was at its greatest extent during the thirteenth century BC (Pare 2000b, 32). He defined a large tin supply network of international scale serving the vast area between the British Isles, southern Scandinavia, the Carpathian Basin, and Tuscany. This led to the question, from where was the tin leaving Britain? There are general references to Cornwall: certainly the county was a source of English tin, but the evidence is remarkably elusive regarding where it was mined and from where it was shipped nationally and internationally. If Pare and Kristiansen's models are correct – that tin exchange sparked a whole new world – then these sites, as yet unrecognised, developed an important role in supplying the raw material on which emerging economic and political structures were founded. Their location would have influenced routes which continued in use in the Iron Age.

In the same volume, Huth (2000) considered the exchange networks required to supply tin to the bronze industry. It is recognised that, despite much work on the qualitative aspects of Bronze Age exchange systems including the role of bronze in society (e.g. Kristiansen 1987; Sørensen 1987) many quantitative questions remain, including the geographical extent of the exchange networks (Huth 2000, 176). Similar questions exist for the Iron Age. The maritime network considered in this study will provide an indication of the extent of coastal connections at that time.

2.2.6 Emerging maritime perspectives

A major theme in the method and approach of the present research was the combination of terrestrial and maritime perspectives – seeing the land from the sea. It is the opinion within this work that the marine environment can and should be studied with the same level of archaeological rigour applied to landscapes. The method developed specifically for this study combines the reuse of evidence previously gathered with new material and perspectives from maritime and terrestrial studies. The integrated approach adopted in this study was supported by discussions at TAG (Adams et al. 2002). This session, presented by maritime archaeologists, sought to emphasise the irrationality of separating maritime from terrestrial issues/relationships.

The term "maritime culture" has been linked with Dr Toby Parker's work (2001), but was earlier employed by Hunter (1994) and by Keith Muckelroy for his study of cross-Channel connections in the Bronze Age, based on the Dover and Salcombe wrecks (1980; 1981). The use of maritime material provided advantages by including sets of evidence often not brought to the consideration of archaeological sites (see Westerdahl 1992; Hunter 1994; Parker 2001; and more recently an edition of *World Archaeology* (Vol 35 (3) 2003) devoted to the topic).

One of the arguments challenged in this study was succinctly stated by Parker (2001, 27), that a "coastal location does not in itself indicate the status or function of a site". At a very general level, the veracity of that statement is not disputed here, but it would seem to dismiss the entire range of coastal sites from any defined role and thus required qualification. Coastal location was the starting point for consideration of the potential sites in this study. On this fundamental point, the other factors that aid site identification were then superimposed: physical traits, associated artefacts, other sites in the vicinity that may comprise elements in the proposed complex, as well as the navigational factors, if the location is suitable for a route to transport imports or receive goods/raw materials for export. Coastal locations have not been dismissed as undefinable, they have rather been treated as a basis from which further investigation can develop.

The lack of integration of maritime and terrestrial perspectives and approaches has previously caused potential indicators of site location and/or coastal activity to be dismissed. Some of the 'problems' with maritime archaeology were outlined by Parker (2001, 23-5) and can be summarised as:

a) The archaeologically visible coastal structures (quays, jetties, etc.) are only part of the facilities used by boats in the past. Other elements, such as portage, are difficult to identify.
b) Port activity may have been inland of the coast.
c) Encroachment, erosion, and silting may have altered or destroyed any remains so that the "...pattern of maritime occupation is often a patchwork, with gaps" (Parker 2001, 24).
d) It is difficult to reconstruct past conditions – weather, sea-level, tides, etc.

These points highlight some of the difficulties faced in the study of coastal sites, but they should neither prevent not inhibit that study. By applying rigorous archaeological methods, the problems can be overcome to an extent that can deliver meaningful results from the study. Parker's criticisms can be answered as follows:

a) Although portage may leave no direct archaeological trace, the practice and locations can be suggested by consideration of the nodal sites, riverine connections, and artefact distributions, as discussed in Chapters Four and Five.

b) Any port activity by definition requires a waterside location and, for anything other than local traffic, the location would need to be on tidal water. (If the site served only non-tidal, local traffic, it is likely that it would link to another, tidal site nearer the coast.) To ensure that such sites were not omitted from this study, it included the investigation of tidal estuaries and rivers.

c) Almost without exception, any type of archaeological investigation works from a 'patchwork' of evidence. It is the nature of the primary material. This should not and does not preclude structured investigation. Evidence can be incorporated from related disciplines as with the application herein of sea-level data and geomorphological assessments.

d) Again, such problems pervade the study of all past environments but informed research and comparative studies can go some way to overcoming such difficulties. The level of detail might not be extensive, but valid attempts at reconstructing past environments can be made. One method, as adopted herein, is to follow a local approach to site considerations: local detail is currently more accurate and more reliable than general coast-wide trends.

2.3 Summary

This chapter has reviewed our knowledge and understanding of the Iron Age in southern Britain and of connections across the Channel which evolved through previous studies. The current situation is one of increasing diversity, with considerations of alternative models and new themes, such as the growing interest in pre-Roman maritime archaeology. This permits new perspectives of the land from the sea to be developed and these are pursued in this study. It has been shown that previous work concentrated on artefact studies; this research now seeks to look at sites and places as the physical contexts of interactions.

The location of the English Channel, beyond or on the edge of the classical world, has perhaps led to it being perceived as the poor relation of the Mediterranean, at least in terms of the archaeological attention that it has received. However, as suggested in this chapter, studies related to the Mediterranean can illuminate processes in the Channel and provide useful comparisons that will be returned to in later chapters.

What is evident from the brief review above is that the English Channel was a dynamic environment, along and across which interactions occurred for trade, exchange, and other reasons. The following chapter will examine in more detail the physical conditions of the coast and the coastal sites where those interactions might have occurred.

Chapter 3

Defining the English Channel and its use in later prehistory

3.1 Introduction: the English Channel defined

The English Channel defines the context and, to some extent, the nature of interactions at the coastal sites that are the subject of this research. It is therefore essential to examine the physical nature of the Channel itself when considering how it might have been used in later prehistory. Evidence is presented from classical texts, finds and wrecks, as well as considerations of the use of the Channel waters by different types of vessel. Evidence of Bronze Age and Roman practices is also considered as indicative of the antiquity or suitability of use of the routes or sites discussed.

This chapter initially outlines the current nature and extent of the Channel coast and how it evolved through time. It considers issues of sea-levels, coastal geomorphology, and the subject of coastal change. The review of coastal transformation reveals how little precision there is in current models and supports the use of general regional trends, with a focus on local (site-specific) factors, in this study.

People's interaction with the English Channel has always been heavily influenced by its formation, tides and currents, so a consideration of later prehistoric sea-faring capabilities and techniques including navigation and potential sea-routes is presented. This demonstrates how the English Channel was utilised before and during the period of this study. Three 'zones of use' can be identified: inland (along estuaries and rivers), coasting, and across the Channel. The types of vessels used in those zones during the Iron Age are reviewed as there are obvious implications for the location of sites, their spacing and distribution along the Channel coast, as well as the physical requirements for mooring, loading and off-loading cargoes, etc.

The patterns of rivers and shore in some places have undergone considerable alteration (Romney Marsh, for example, did not exist as dry land during the Iron Age (see Muckelroy 1981, 280)) and sea levels have been subject to continuous variation resulting in shifts in the boundary between land and sea. The English Channel coast is too long to consider as a unity in these regards – the type and rate of change varies considerably along the coast. At a very crude level, geography and topography always have a profound effect on what is possible, let alone what actually occurred. The information presented in this chapter therefore provides an indication of the physical character and development of the Channel and coast to suggest a context for archaeological considerations of coastal issues, and against which the investigation of sites is placed (see below and Chapters Four and Five).

3.2 Physical development of the English Channel

This section outlines the current nature of the Channel and its northern coast, its development and influences upon it, as the starting point of the study. The northern coastline of the English Channel measures approximately 1600 km along the high water mark[4] between Dover and Land's End, the limits of this study (CORINE 1998) (Figure 1). The nature of the coastline and influences upon it vary tremendously. However, the modern coastline and bathymetric models do not provide an accurate guide to the ancient coast. Coles (1998, 45) recognised this for the former North Sea landscape and the same is true of the English Channel (see also Devoy 1995). Therefore a cautious approach to inferences about coastal morphology is advocated and adopted within this study. For general trends and considerations such as passage routes and navigation, the model developed by the Early History of the English Channel Project at Bournemouth University is adequate for the past two thousand years (Bournemouth University 2001). For local studies and detail, including the case studies herein, such general models can only be used as indicators, not definitive guides. In each case, local evidence must be applied as even regional trends are not always relevant to local coastal processes and their effects. From this the ancient shoreline and possible coastal site locations can be suggested.

[4] This includes the coastline of any island with a width greater than 0.5 km (including the Isle of Wight). It excludes any estuary whose entrance is less than 1 km across and any estuarine shore upstream of the point where the estuary narrows to less than 1 km. This means that it excludes Poole and most of the other estuaries, but includes Southampton Water (V May, pers. comm.).

3.2.1 The English Channel today

The English Channel is now one of the busiest sea routes in the world, with major ports at Dover, Portsmouth, Southampton, Plymouth, Calais, Le Havre, and Cherbourg. It is *c*.560 km (*c*.350 miles) by a direct line from the western entrance, between Ushant and Land's End, to the far side of the Straits of Dover, and the body of water covers occupies *c*.60,000 km sq (*c*.23,000 square miles) (Calder 1986, 1) (Figure 1). The Channel acts as a 'corridor' between the Atlantic Ocean and the North Sea and is named 'La Manche' (the sleeve) by the French, reflecting the outstretched arm between the two entities. It has variously been described as "a wild frontier between two closely related peoples" (Calder 1986, 2) and "the Mediterranean of the North" (Giot 1984, 1).

The Channel varies in width from the shortest distance of 34 km (21 miles) between Dover and Cap Gris-Nez in the east, to 240 km (150 miles) between Lyme Bay and the Gulf of St Malo near its centre (this is actually wider than the distance between Land's End and Ushant which is 180 km (112 miles)) (Figure 1). It is bounded to the north by southern Britain in the form of the coasts of seven traditional counties (Kent, East Sussex, West Sussex, Hampshire, Dorset, Devon, and Cornwall). The southern coast is shared mainly between Normandy and Brittany in north-west France, including the area known as Armorica in studies of later prehistory (derived from Celtic *Ar-mor* meaning 'land of the sea' (Calder 1986, 31)). The coast is now divided between 10 modern *departements* (Nord, Pas-de-Calais, Somme, Seine-Maritime, Eure, Calvados, Manche, Ille-et-Vilaine, Côtes-d'Armor, and Finistère). Between the two coasts lie various islands including Ushant, the Channel Islands, and the Isle of Wight.

In modern times, water flows into the English Channel mainly through incoming tidal streams and currents from the Atlantic and from various rivers, the main one (in terms of water volume) being the Seine. The sea bed falls off regularly from the shallower waters of the east (average depth of the Dover Strait is *c*.25 fathoms/*c*.45 m) to the deeper Western entrance between Ushant and Land's End (average depth *c*.60 fathoms/*c*.110 m). The one exception is Hurds Deep immediately north and north-west of the Channel Islands, which reaches 94 fathoms (*c*.170 m). Off-shore the slope from the English coast is smoother and more regular than from the French. With the added consideration of greater navigational dangers (rocks, bars, and problems of winds and currents) off the French coast, the fairest shipping routes are closer to the southern coast of Britain.

3.2.2 The formation and development of the English Channel

The formation of the Channel occurred towards the end of the Devensian glaciation, (*c.*70,000 – 10,000 bp), during which time sea-level had fallen by *c.*100 – 150 m. Until that time, the area of the English Channel was a long, deep valley inlet running west to the Atlantic coast between Cornwall and Brittany through which the Seine-Solent drainage system ran (Morey 1966, 14; Great Stour Project 2003) (see Figure 4). The valley extended from a head in the area of the current Strait of Dover which was the last part of the land link with the continent to be breached when formation of the English Channel was complete.

The formation of the Channel as we now know it can be attributed to the changes in sea-level and land-height at the end of the Devensian (*c.*10,000 BP). The nature and effects of the change depended on several variables (Long and Roberts 1997, 25) the most significant of which were glacio-eustasy (increase in the volume of water following deglaciation) and glacio-isostasy (land movements following ice-sheet retreat). Most of the ice-loading and crustal depression in the last glaciation were centred on the Grampian uplands of Scotland. Beyond the ice-limit that stretched across southern Britain was an area of forebulge (a compensation zone of crustal uplift). Following deglaciation, the forebulge collapsed resulting in crustal subsidence in southern Britain and a net rise in sea-level that was further enhanced by simultaneous tectonic subsidence of the southern North Sea basin (*ibid*, 29).

The marine transgression that resulted from the retreat of the ice-sheet was significant: a long gulf expanded east from the Atlantic coast, broadening over the shallow coastal fringe. Channel formation was complete when the chalk ridge (the 'land bridge') between Kent and Picardy was breached *c.*6600 BC (Evans 1975, 67; Coles 1998, 66; Bournemouth University 2001).

Due to the regional differences in glacio-isostasy there were distinct spatial variations in the rate and chronology of sea-level rise through the Holocene – sea level changed at different rates at different places. This is one of the main reasons why only relative sea-level curves (combining general trends in land subsidence with rising sea levels) are available for Britain, and there is no definitive sequence of sea-level change for the English Channel. Indeed, assessments of relative sea level (RSL) vary dramatically at even the regional level (see Table 1). However, individual authorities also identify differential rates of change. Devoy (1990, 17) stated that for north-west Europe RSL is currently rising at a rate of 1 – 3 mm pa; however, he further estimated that 2000 years ago RSL was only 0.5 – 1.0 m below current levels, suggesting that the rate of RSL rise is increasing.

Shennan (1989) calculated that subsidence in south-east Britain was greater than 1.5 mm pa, whereas the uplift in north-west Britain was more than 1 mm pa. This was a very generalised conclusion but indicated a land fall of *c*.3.0 m in the past 2000 years in south-east Britain, with a relative rise in sea-level.

Closer examination of regional material highlights the differences along the south coast. Rates of land subsidence (taken from Tooley 1990, Figure 1.4) in south Kent have been recorded at 0.7 – 0.9 mm pa (equivalent to 1.4 – 1.8 m land subsidence/RSL rise in the past 2000 years). In south Devon, annual subsidence ranges from 0.1 – 1.4 mm pa (resulting in 0.2 – 2.8 m land subsidence/RSL rise in the past 2000 years). This approximately accords with the estimation that sea-level along the south-west coast increased by an average of *c*.1.3 m during the past 2000 years (Long and Roberts 1997, 34).

These calculations inform this study in two ways. First, they provide indications for the interpretation of the character of the coast and littoral in the Iron Age and, in particular, allow calculations of the depth of water available for shipping at various points. Second, the subsequent changes in sea-level and the coastal zone mean that Iron Age coastal sites are not necessarily in coastal locations today. Former coastal sites may now be at a distance inland (as at Pevensey); others (such as the southern lands of Selsey) have been lost to the sea and are now either submerged sites or have been eroded altogether.

In view of the complications outlined above and to overcome some of the difficulties associated with the varied assessments of RSL, Tooley (1990) advocated a local approach using age-altitude graphs that plot index points of dated organic deposits and archaeological evidence related to OD. At present, the spatial distribution of these points is uneven (Tooley 1990, 5) but the expanding database is maintained by IGCP at Durham and provides a useful indication of former sea levels around the coast of Britain.[5] The local approach to sea level considerations is adopted within the present study.

A complementary process was formulated by Waddelove and Waddelove (1990) and Toft (1992) using archaeological evidence to postulate former shorelines and sea-levels. Both of those studies developed a method of determining minimum occupation levels (MOL) from the application of a determined level of freeboard above the known Highest Astronomical Tide (HAT). The freeboard levels were estimated as listed below (adapted from Waddelove and Waddelove 1990, 255):

Feature	*Estimated freeboard required above HAT*
Floor levels adjacent to tidal estuaries	0.4 m
Quays (also applied to jetties and wharfs)	1.0 m
Bridges and roads	0.3 m

This method and the freeboard figures were employed in this study at sites with dated levels to determine contemporary HAT, or where Iron Age sea level was known to determine the MOL (see Chapters Four, Five and Seven).

As well as the post-glacial effects of glacio-eustasy and glacio-isostasy outlined above, the coastal zone and sites within it have been affected by other causes of change including the movement of gravels and sediments by natural and artificial processes, and erosion by wind and water (see Devoy 1990, 18-20 for detail). Many of the changes observed in harbours and estuaries are as a result of the deposition of alluvial material in the historic period. (For example, despite a rise in sea-level, Christchurch Harbour is less viable as a marine port now than in the Iron Age due to the massive effects of silt deposited by the rivers Avon and Stour in the historic period.) Much of the silt and deposited material derived from the intensification of cultivation from the Roman period onwards that allowed loosened soil to run off into the river system (see, for example, Evans 1975; 1999; Bell and Boardman 1992).

The English Channel is still a dynamic environment, constantly changing and evolving through natural processes and those attributed to human influence. The

[5] The radiocarbon dates obtained from timbers within the 'Green Island causeway' structure (see Chapter Seven) will be added to that database.

background information outlined here has suggested a picture of regional variation that this study later pursues with an investigation of local situations.

3.3 From the land and from the sea: the evidence for later prehistoric use of the English Channel

> Sea-crossings offered "a line of least resistance or greatest opportunity"
>
> (Fox 1943, 10)

The maritime environment provided an important resource and arena for communication, trade, and technological and cultural development (Devoy 1990, 17). Exploitation of the marine and littoral resources of the English Channel (fish, shellfish, seaweed, salt, reeds, fowl, etc.) provided many benefits for settlement in the coastal zone. However, the main concern in this study is the use of coastal sites for trade and as 'nodes' of interactions along and across the Channel. To examine the background to the use of the sites and infrastructure requirements, it is necessary to outline how Iron Age people and goods could have moved along the coast and across open water. The following sections present and examine contemporary evidence and previous studies that relate to the later prehistoric use of the English Channel and that inform the model of site characteristics and use developed in Chapter Four.

3.3.1 The English Channel and seafaring in classical literature

The period of study straddles the interface between British history and prehistory. Although no native written material is known from this time, the people and land of Britain were recorded, albeit in little detail and for specific, perhaps biased, purposes by writers on the continent, based on accounts from travellers, explorers, and traders. In addition, contemporary and later writers left accounts of trading practices and places from within the Greek and Roman Empires. Ancient maps are also useful information sources. For example, Roman maps name the Channel Islands as *Insulae Lenuri* (Calder 1986, 75; Rule and Monaghan 1993, 4), that is a Latin and Celtic combination meaning 'Mooring Islands' or 'Islands of Moorings' (*ibid*).

The material provided by the classical texts is hard to integrate with archaeological evidence in this country, so its use in Iron Age studies has been called into question (see Fitzpatrick 1990). However, Barry Cunliffe has argued that the material can provide a useful background and a starting point for research (1984c, 32).

The earliest known reference to Britain and Ireland is in the sixth-century BC Massiliote Periplus. The document itself has not survived but fragments were quoted in the fourth century AD by Avienus in his poem *Ora Maritima* (see Murphy 1977). The Periplus detailed a sea voyage from the Greek colony of Massalia (today's Marseilles) south-east down the Mediterranean coast of Spain, through the Straits of Gibraltar, then north-west along the Atlantic coast to Tartessos, an ancient city that was probably situated north of current Cadiz. The Tartessian inhabitants were recorded as trading north along the Atlantic seaboard to Brittany and also with two large islands that are named by Avienus as Ierne (Ireland) and Albion (Britain). This is the first record of a voyage to the area, but it indicates that Britain was already part of a trade network that incorporated France, the Atlantic coast of Europe and the Mediterranean, that were linked by marine as well as overland and riverine routes at that time. Unfortunately, in this early account, there was no detail of specific trade sites in Britain nor of the goods exchanged.

Britain was the subject of more detailed attention in later Massiliote writing by Pytheas in the fourth century BC. Again, his original Greek text, Περι του Οκεανυ (*On the ocean*), has been lost but was quoted by later writers including Diodorus, Strabo and Avienus. The account by Pytheas has also been studied by modern writers (including Hawkes 1978; Whitaker 1981; Roseman 1994; Cunliffe 2001b) who have retold the tale in light of current knowledge.

Pytheas detailed a journey north from Massalia, and commented on shipping movements, routes and types of vessel, goods traded, ports, tribal names, islands and promontories, and complex exchange networks, all of which are very pertinent to this current study. As Cunliffe observed, to ignore such material is to lose much potentially useful information (1984c).

In Pytheas' account of his voyage to Britain, the ancient route linking the Mediterranean to the Atlantic is described. Whereas the earlier Massiliote Periplus detailed a route around the Iberian peninsula, Pytheas appears to have travelled a different route by land and river across France to the Atlantic coast, then voyaged north along that coast in a series of tramping stages, probably taking passage in different local boats for each stage (Roseman 1994) before crossing to England (see

Cunliffe 2001b, map on page 57). If this reading of his account is correct, it shows how travel was undertaken with staging and tramping voyages, and is relevant to the understanding of how goods and people moved along and across the Channel.

Pytheas recorded that his route across the western Channel, from Brittany to Cornwall, was that exploited by tin traders. This covered approximately 95 nm, which would equate to a passage of *c.*24 hours' duration in favourable conditions (Cunliffe 2001b, 73). Cunliffe (*ibid*, 65) linked the site he is excavating at Le Yaudet in Brittany, currently the only known Breton port in use during the Iron Age, with that route. Finds from the site include granitic pottery that probably came from south-west England, most likely from a source in Devon, attesting to the cross-Channel links between Armorica and that region during the first and second centuries BC (Cunliffe 2001b, 66; B Cunliffe pers. comm.). This evidence would be consistent with Pytheas' description of a route running from the Mediterranean to north-west France, and on to Cornwall and south-west Britain.

Additionally, Pytheas described the role of islands and promontories as key elements in the trade networks, including Cadiz, Spain and Mogador off north Africa. These appear to have been treated as safe places and perceived as neutral territory in which to conduct the transactions of exchange. (Islands are part of the 'suite of elements' included in the 'coastal node' model presented in Chapter Four.)

Pytheas did not mention many specific places by name but did provide detail relating to the island site of *Ictis* and its role in the export of tin from England.[6] The location of *Ictis* remains the subject of controversy. It has been variously identified as Mount Batten (Cunliffe 1983b), St Michael's Mount (Herring 1993a), Burgh Island or Hengistbury Head (Davis 1997), and the Isle of Wight (primarily due to the similarity with the Roman name of the island, '*Vectis*')[6] (Ridgeway 1924; Hawkes 1978).

When considering the early stage of the Roman conquest of Britain, Keith Branigan (1973) assessed the recorded movements of the Emperor, Claudius. It was suggested that, after his short stay in Britain following the military 'invasion' of AD 43/44, Claudius left for the continent from a south coast port. Branigan suggested this was Chichester Harbour. If that was the case, the harbour must have been a recognised port prior to the conquest as there would not have been time afterwards for it to be established and operational to serve the Emperor and his vessels so quickly. The harbour must also have been large enough to accommodate vessels of the fleet. Branigan further suggested that Chichester Harbour maintained links with the continent as he said it was involved in receiving and distributing supplies for the Legio II Augusta in the south-west campaign.

Branigan has also postulated that Vespasian's route into the south-west from Badbury Rings to Exeter followed a pre-existing trackway. The Legion was supplied by the fleet via Weymouth, and possibly Seaton and Topsham, as it proceeded west, using "harbours which were close enough to the existing pre-Roman trackway to be of value" (Branigan 1973, 53). It may be suggested that the trackway ran close to those places because they were pre-existing harbours and part of the Iron Age coastal network.

Of all the classical texts relating to Britain, one of the most frequently quoted is Julius Caesar's account of the Gallic war and his two attempted invasions of Britain, *de Bello Gallico*. This provided much information for subsequent investigations and debate. For example, Dowker (1876) considered where Caesar might have landed in Britain by applying his knowledge of the coast, tides, and currents to the accounts given by classical authors. This indicates how information contained in classical texts can be of use in the study of the topic, and this approach is followed here.

Two elements of Caesar's writing are of particular importance to this study: his notes on the Veneti and the Belgae. Caesar stated that before his initial crossings (55/54 BC), a group of Belgae had crossed the Channel to England, first to fight and then to settle as farmers. The movement of the Belgae is the only documented Iron Age immigration into Britain and this has given rise to furious debate regarding their role in the Iron Age developments of southern Britain (see Chapter Two).

Caesar recorded the Veneti as a seafaring tribe from north-west France who fought against him at sea and sent a request for assistance to Britain, their trading ally (*de Bello Gallico* III.9). Further detail was later added by Strabo (*Geography* IV) with information regarding the type of ships used, cross-Channel routes, and a specific reference to the trade connections between the Veneti and Britain (IV.4.1).

[6] 'Ictis' was named by Diodorus (V.22) as an island site involved in the export of tin extracted from Cornwall. It was subsequently confused with the name 'Vectis', recorded by Ptolemy (II.3.14) and *(footnote continued...)*

This has been interpreted as general trade with Britain but Melinda Mays (1981) argued that it referred to a specific trading site with which the Veneti were keen to safeguard links; she further proposed that the site was Hengistbury Head in Dorset. If so, this supports the extensive archaeological evidence recovered at Hengistbury Head by Cunliffe (1987) (see Chapters Six and Nine).

Mays (1981, 56) also considered Strabo's comments on trade sites. He stated that an ἐμπόριου (*emporion* or trade site) was often the most important town or city in an area or territory, and situated on or near the sea or a navigable river (or both) for access and the distribution of goods (continental examples given by Strabo include Narbo and Arelate (*Geography* IV.1.6)). The site of Venetic interest in Britain was an important trade centre, probably a safeport, which was easily accessible to and of assured identity to the Veneti. Items imported to Britain via that site included ivory, amber, glass and 'petty wares' (*Geography* IV.5.3), and exports included iron, gold and silver, and perishable goods including grain, slaves, cattle, dogs, hides, etc. (*Geography* IV.5.2). These are useful indicators in this study and inform the physical traits model (Chapter Four).

Classical texts have been subject to extensive interpretation and it is not the purpose of this thesis to explore these in detail. They are a valuable source of information that, if approached with caution, can provide useful indicators for archaeological research. Information derived from the texts has been a crucial element in the development of the models and interpretations in this thesis. The detail that can be extracted from the texts demonstrates that Britain was part of a maritime network stretching to the Mediterranean with specific cross-Channel connections and relationships.

3.3.2 Artefact distributions and stray finds

Many of the maritime routes and coastal sites suggested in earlier works were based on inferences from artefact distributions (see Chapter Two and section 3.3.8). The presence of artefacts not local to the place of deposition represents contact between different areas in the form of the movement of goods and/or the movement of people. This study focuses on the contacts both along and across the English Channel. It is

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Pliny (*Natural History* IV.103) (see Rivet and Smith 1979, 487).

not the purpose of this thesis to revisit all previously plotted distributions in detail – they have been synthesised by others (including McGrail 1983; 1990; 1995a; Giot 1984; 1997; Allen and Fulford 1996; Holbrook 2001) and to do so here would be unnecessarily repetitive. It is not the artefactual material as such that is of interest here, but rather the coastal sites through which it passed on its route from origin to deposition.

Artefact distributions derive from two sources: excavated material and stray finds. As a category, stray finds are of dubious integrity: by their nature they are usually without context and there is often doubt regarding how or when such objects might have been deposited. This problem was addressed by Harbison and Laing (1974) in a study of 22 Iron Age Mediterranean imports found in England. They concluded that authenticity of "probably" or "almost certainly" genuine status could be attributed to only six of those objects. However, that did not mean that all stray finds should be dismissed from consideration, but it did emphasise the caution with which they should be approached.

The use of coins as evidence for distributions, routes, and trade is a particular problem. Many were probably brought into the country as collectable objects but this is not always evident if they were lost and then recovered as potential archaeological imports. Similar situations have been observed in Devon where items from antiquarian collections cause particular problems (J Allan, pers. comm.)

Another problem has been encountered when endeavouring to determine what groups of people might have been involved in moving the coins and other objects. For example, a number of coins minted by the Coriosolites were recovered from Hengistbury Head. For some time these were interpreted as evidence that the Coriosolites travelled to Dorset and traded with the inhabitants (for example, Cunliffe 1987, 339-40). However, Philip de Jersey (1993) reassessed the evidence and has presented an alternative view. He considers that the Coriosolites conducted coasting trade between sites in north-west France that brought them into contact with the Veneti, and concludes that it was the Veneti, a group who did not produce coins, who brought those of the Coriosolites to Hengistbury Head.

These cautionary considerations do not invalidate the interpretation of coins, but signifies that we need to be careful. Their use here is to suggest possible coastal sites through which the goods and people might have passed. The further study of each site will reveal whether the indication was appropriate. Colin Haselgrove's study of

Potin coins from north Kent (1988), dating from the second – late first centuries BC, showed that they have been recovered from as far away as Penzance, Cornwall, as well as Maiden Castle, Dorset, and Dover in Kent (Haselgrove 1988, Figure 1). These places all feature in the present study.

Further evidence of cross-Channel links came from two unusual finds of gold coins, both contained within hollow flint balls. 14 gold coins from northern Gaul and southern Britain were found at Hosey Common, Kent; they were dated to the late second century BC. Similarly, 11 Gaulish gold staters were found in such a ball near Rochester (Box 1928).

As well as indicating specific sites, artefacts have been used to suggest contact in more general ways. For example, decorative motifs on several bronze bowls of the Iron Age are direct imitations of French ceramic decoration, e.g. the Birdlip bowl (Green 1949), the Rose Ash bowl (Fox 1961a), and the Bulbury bowl (Cunnington 1884; Cunliffe 1972).[7] The British examples from Rose Ash and Birdlip were attributed to the south-western metalwork tradition (Fox 1961a). Similarly, many locally produced pottery items imitated the form and/or decoration of continental pieces (for example, pottery sherds recovered from Green Island in Poole Harbour (see Chapter Seven) are imitations of Gallo-Belgic wares produced in local fabrics). Whilst not immediately indicative of trading sites, such examples attest cross-Channel contacts linking south-west Britain and France, and the apparent movement of ideas and styles as well as actual goods between the two regions.

Information regarding the finds considered in this study was collated from the coastal county SMRs and the literature search (as detailed in Chapter One). Along the south coast over 1800 potentially relevant find spots were identified, covering the main categories of ceramic, metalwork, and coins. The locations of pertinent find spots or clusters of material observed in the distributions were examined for any correlation with the models of 'coastal nodes' developed in Chapter Four.

The largest category of material for consideration is ceramic. Iron Age wares were initially regarded as domestic products, not produced for exchange. However, developments in petrological studies have demonstrated that this is not necessarily the case and determined that pottery was indeed an exchange commodity (Peacock

[7] See Chapter Seven for further detail of the Bulbury bowl.

1982, 81).[8] Ceramic composition often allows finds to be provenanced to clay or inclusion source areas from which routes to deposition can be proposed. In some cases, the matrix and inclusions are demonstrated to come from different places (R Taylor, pers. comm.). This provides a very important and more objective angle on the whole question of the movement of materials. If soundly based, on good petrological evidence, this can provide more reliable data and precise provenance determinations than those derived from stylistic analysis of ceramics alone. However, vessel form and decorative style can indicate the area of origin and hence if the pottery was likely to have been manufactured within the region or imported. Imitation of exotic form and style further attests to links between the often distant groups. Ceramic was the basis of Cunliffe's 'Style Zones' (Cunliffe 1975) that was suggested by David Peacock to reflect patterns of production and exchange (1982, 81).

Recent and ongoing work in south-west England has begun the process of characterising the inclusions in granitic and gabbroic wares (Quinnell (with Taylor) *in* Gent and Quinnell 1999; Quinnell 2003; R Taylor, pers. comm.). This will be of benefit in provenancing south-western ceramics to provide distinction from and comparanda for pottery of north-west France and other granite areas (B Cunliffe, pers. comm.). As part of those studies, Lucy Harrad identified a concentration of pottery production sites that utilised local clays from the Lizard. The distribution of the pottery from there suggested it was shipped around the coast from the Helford Estuary to a redistribution point that Harrad proposed at St Michael's Mount (Harrad 2002). Both the Helford Estuary and St Michael's Mount are considered as potential sites in this study (see Chapter Five and Appendix One).

Pottery that is found outside of its region of source/provenance is a useful indicator of inter-regional exchanges. Examination of the distributions of such material suggests the routes from origin to deposition and hence the sites/areas the goods might have passed through. Regional examples include those outlined below.

Cornish ceramic material has been found throughout southern England including Kent (Parker Pearson 1990), Dorset (Field and Calkin 1973), and also at Hardelot in

[8] The ceramic vessels may have only been the containers for the objects of trade (e.g. Williams 1989) but represent the distribution of materials and exchange relationships.

Pas-de-Calais (Parker Pearson 1990). The dispersed nature of these finds would suggest the use of maritime and riverine networks connected via the coastal nodes.

Similar coastal networks were proposed for the Black Burnished Ware output from the area of Poole Harbour (see Holbrook and Bidwell 1991; Allen and Fulford 1996), specifically linking it with east Devon, possibly via Seaton and Topsham (see also Holbrook 2001). The reciprocal coasting route was proposed for the transport of late Iron Age South Devon ware to Dorset. South Devon pottery has also been found in Cornwall and again it was proposed that it was traded via the coastal route (Holbrook 2001).

Amphora is a distinct class of ceramic container which is particularly useful for the identification of sources of trade. However, it was the contents which were the object of trade rather than the vessels themselves. Amphorae have been the subject of much study (including Peacock and Williams 1986; Williams 1988; Carver 2001; Loughton 2001; etc.). Amphora sherds can often be identified as distinct types and so closely dated and sourced. They also suggest the type of commodities (wine, foodstuffs, etc.) that were traded but which do not survive in the archaeological record. For these reasons amphorae are particularly useful finds. Most Iron Age amphora finds have so far been concentrated in the central southern sector, and display a mainly coastal distribution (Peacock 1971). However, the contents could have been decanted to other containers (such as barrels, etc.) for easier transport on smaller boats and division into tradable units (Cunliffe 1978b; Galliou 1984) and then coasted or transported inland. If that is the case, the decanting between containers is likely to have occurred at the port sites and would have required the ready availability of pottery containers, barrels, etc. which therefore may have been manufactured locally.

3.3.3 Wrecks and offshore finds

One of the more unusual categories of find from later prehistory is the range of metal items recovered from the sea-bed, interpreted as the cargoes from wrecked ships (Figure 5). The two most prominent examples are the sites at Langdon Bay, off Dover, and Moor Sands at Salcombe (for both examples see Muckelroy 1980; 1981; Parham in prep.). The alleged wreck sites might be indicative of routes followed in antiquity, although conversely the vessels might have foundered because they were off course. These two examples are each in the immediate vicinity of sites identified in the present study as potential coastal nodes, at Dover and at Kingsbridge/Salcombe and nearby Bigbury Bay. The surviving cargoes which were recovered consisted of continental metalwork and thus the ships appear to have crossed the Channel but foundered before making the safety of the port. It is possible that the Dover ship had been crossing the Strait from the area of Calais. The wreck off Salcombe lies on the route from Brittany and the along-Channel route between the south-west and south-central British sectors.

To the north-west of the Salcombe site is the case study area of Bigbury Bay. At the outflow of the River Erme into the Bay, 40 tin ingots were recovered by divers in 1991-2. These were interpreted as cargo from a wrecked ship and may be of later prehistoric date (Fox 1995). If so, they are evidence of the area's role in the maritime trade in tin that was linked with continental networks (see Chapter Eight).

Other sea-bed metalwork finds similarly suggest cross-Channel voyages that failed to reach port. A Sicilian bronze axe was found off Solent Beach near Hengistbury Head in 1937 and was interpreted as indicative of the Atlantic trade route (Hawkes 1938a; 1938b). The proximity of the find spot to the known port site at Hengistbury Head, 1.5 miles to the east, would suggest that, if this does represent cargo, the vessel may have been making for that site where other bronze axes have also been found (Cunliffe 1978b, 29), including a Breton type (Bushe-Fox 1915, plate XXX item 12). However, the rate of erosion from this area of sand cliff and heathland is extreme; estimates for the cliffs at Hengistbury Head range from *c.*1.5 m pa – *c.*2.0 m pa (Bushe-Fox 1915, 10; Cunliffe 1987, 4; see Chapter Six). The axe was entangled on a fishing line cast from the shore, and retrieved from *c.*46 m (recorded as *c.*50 yards) from the low water mark (Hawkes 1938a). There is no certain means of assessing how far the item had been moved in the water, or whether it had indeed eroded from a land site on the surrounding cliffs or an underwater erosion surface. However, regardless of whether it came from a wreck or a terrestrial site, the presence of this and other imported objects in the area attests to prehistoric cross-Channel links.

Similar finds have been made from other coastal locations. Cross-Channel connections can be inferred from the trade in Bronze Age axes between Brittany and England suggested by axe finds near Plymouth, Southampton and Selsey (Burgess 1969). Two other examples have been found off Dorset – a late Bronze Age Breton axe recovered off Chesil Beach, and a water-worn example from Portland beach have been interpreted as items from a wreck in the vicinity (Taylor 1980). The Portland/Weymouth area is identified in this study as a likely coastal node and evidence of wrecks in the vicinity that carried imported cargo would support that case. These examples were perceived as elements in a Europe-wide exchange network articulated via harbours at river mouth locations (O'Connor 1980; Taylor 1980, 136).

Recently, another palstave has been recovered from the entrance to Poole Harbour (Figure 6).[9] This has been identified by Stewart Needham as a late Bronze Age end-winged axe, a type known from southern Britain and north-west France (Needham, pers. comm.). It was found at *c.*-18.1 mOD on the harbour bed adjacent to a peat deposit from which a sample has been removed for dating in the near future (K Jarvis, pers. comm.; M Markey, pers. comm.). Jarvis speculated that the axe was part of a scrap metal cargo from the wreck of a vessel that was making for the port site in Poole Harbour (K Jarvis, pers. comm.).

A particularly unusual find related directly to maritime traffic is the iron anchor from Bulbury hillfort, Dorset. The hillfort itself is of some significance to this study and the anchor is evidence of the site's links with the maritime activity in Poole Harbour (see Chapter Seven).

3.3.4 The evidence of excavated sites

Comparatively few Iron Age coastal sites have been excavated on either side of the English Channel. Those that have been include Mount Batten in Devon (Cunliffe 1988a), Hengistbury Head in Dorset (Bushe-Fox 1915; Cunliffe 1987), Le Yaudet, Cotes d'Armor, Brittany (Cunliffe and Galliou 1995), and Alet (adjacent to the modern town of St Malo) also in Brittany (Langouët 1984). These sites are located close to modern towns and cities that maintain a port/harbour function. Most of them came to archaeological attention in advance of modern land development. Details of the British sites are presented in the relevant case study chapters and Appendix One.

The information revealed by the excavations at these sites was applied to the model developed within this study (see Chapter Four). In general terms, the model defined the main elements – the characteristics – of each 'coastal node' site. The physical, 'situational' evidence from the sites was in a large part determined by the landscape and topography, but the responses to the natural conditions at each place were of particular interest, i.e. the structures and facilities that had been constructed at the sites to accommodate and service sea-going vessels. The natural and artificial elements of each excavated site were assessed to develop the list of physical characteristics.

3.3.5 Waterborne transport: craft and waterside facilities

"All ships and boats are much the same, just ploughs for the water"

(Calder 1986, 1)

In order to determine the locations of coastal sites of trade and other interactions, it is essential to have an understanding of the types of vessel utilised by prehistoric mariners, including their cargo carrying capacities, voyage capabilities, and what facilities would have been required of harbours and ports to accommodate them.

Evidence of prehistoric vessels is available from various sources, including:

- the preserved remains of the actual vessels
- depictions of vessels on ceramic, coins, and metalwork
- models of vessels
- classical literary sources.

Few pre-Roman vessels are known from Britain and those that have been recorded appear to have been generally for use on inland waters and coasting voyages. Of relevance to this study are four classes of vessel:

- log boats
- hide boats
- plank boats
- sail boats (that could be constructed of hides or planks).

Each type of vessel had its own requirements for port or waterside facilities and infrastructure, and each was suited for use in one or more of the transport zones (inland, coasting, and across the Channel). The vessel types are considered in detail below.

[9] The axe was recovered in late May 2004 by a local diver who donated it to Poole Museum Service.

3.3.5.1 Log boats (see Table 2)

Though in one sense the simplest of vessels, conforming to the image of the 'dug-out canoe', these were actually sophisticated craft capable of moving people and cargoes around inland water networks and undertaking voyages in tidal waters. Their particular use would have been for transport around harbours and along rivers. (As considered here this also included the transfer of goods from larger vessels to waterside facilities such as jetties and quays, and to inland sites.)

The boats listed in Table 2 range in date from the seventeenth to the first centuries BC, yet all conformed to the same basic design of a large trunk (up to 15 m long) hollowed out and shaped for use on the water (see McGrail 1978 for detail). Their manufacture included the creation of a sloped bow and flattening the stern or transom to ensure smoother passage through water. Despite the fundamental simple construction of log boats, many of those so far recorded exhibited differences in form and execution. Fox (1926) combined Irish, Welsh and English data to produce a classification of five groups and a total of 14 sub-groups of "monoxylous craft". Many of the differences now known relate to construction methods that affected the sea-keeping capacity of the craft, including fitting slotted transoms (stern boards) and forming slight protrusions on the hull to serve as a keel.

No specific structures or facilities were required to moor or load log boats: they could be beached on most firm surfaces and brought alongside quays, jetties, or other vessels to tranship goods. Despite no apparent need for formal structures, many of the boats recovered have been found in association with hards or possible jetties, suggesting the preference for formal waterside facilities (see Table 2).

Log boats also had considerable cargo carrying capacities (see Table 2). McGrail (1990) calculated that they could be loaded (with people and cargo) until the waterline reached 60% up the height of the boat, leaving 40% as freeboard.

No log boats are yet known that would have been capable of making open sea voyages. Those so far recovered have been linked to inland water use – in harbours, on lakes, and along rivers and estuaries. Propulsion of the vessels was by paddle or, in shallow water, pole. This is of relevance to this study as it extends the links from the coastal sites along the inland river network. However, it has also been suggested that vessels such as the Poole Harbour boat (see section 7.3.3 below), which according to McGrail (1995a, 261) had the potential for 'high speed' use (up to *c.* seven knots), might also have been used along the coast (*ibid*). McGrail (*ibid*) considered that sturdy log boats would have been quite capable of sea voyages if two boats were joined together or outriggers were fitted and the freeboard increased. If so, the ability of this category of vessel to undertake short coasting trips is of interest to link potential coastal sites and routes. Log boats were a versatile form of craft which "could evidently make a significant contribution to economic and social life in the late Iron Age" (McGrail 1990, 34).

3.3.5.2 Hide boats

Hide boats were probably in use since the Mesolithic and were of particular benefit on exposed coasts or in areas where insufficient suitable trees were available for log or plank boat construction (McGrail 1993, 206; 1995a, 265). They consisted of a framework (of wood, woven basketry or similar) over which animal hide was stretched and secured. They were simple and lightweight, yet resilient and strong enough to be used for sea voyages. Most of the evidence for prehistoric hide boats comes from classical sources and comparisons with later vessels; no certain ancient examples have yet been found in Britain although models have been recovered (see below).

The prehistoric hide boat category incorporates a range of vessel from small, one-person craft (similar to a coracle) to large, open water sailing vessels. The smaller, shallow draft boats could be beached and use informal landing places (McGrail 1993, 206), but care would need to be exercised to prevent holing the skin hull. As with log boats, hide boats were used on inland waters, in harbours, and on rivers, and were propelled by paddle or pole. They were highly manoeuvrable and could easily come alongside quays, jetties, and other vessels.

As well as inland water use, larger hide boats were capable of open sea and cross-Channel voyages in later prehistory. McGrail (1993, 206) suggested a practical length of such vessels to be at least 12 m, although no such vessels have yet been found. However, Cunliffe referred to the 10-15 m long *umiaks* of the Innuit, that can carry up to two tonnes of cargo, as illustrative of the type of hide boats that could have been used during later prehistory (Cunliffe 2001b, 133).

Details from classical sources provide more information regarding the capabilities of hide boats on inland waters and at sea in north-west Europe. Timaeus (quoted by Pliny (4.104)) stated that such boats were used to carry exported tin from south-west Britain on sea voyages. Similarly, Avienus, in *Ora Maritima*, related that the sixth century BC inhabitants of *Oestrymnin* (Ushant) undertook trade in lead and tin by sea using hide boats (see Murphy 1977). Further detail was added in the first century BC by Caesar (*Bello Civili*, 1.54) who stated that British hide boats had keels[10]; this made them more stable in open waters and able to sail closer to the wind (McGrail 1995a) so enhancing the cargo-carrying capabilities and ability to undertake more frequent cross-Channel voyages.

The larger vessels were rigged with a single square sail, and in some cases were fitted with oars to assist manoeuvring and to allow them to make progress against the wind or in slack wind conditions. However, the lack of draft (even when loaded these boats were light and buoyant) would mean limited directional stability, particularly in wind. The addition of a keel as described by Caesar or a steering oar over the quarter would help overcome any drift (McGrail 1995a, 265).

Two model boats illustrate the variety and capabilities within the hide boat class. The Caergwrle model (Figure 7) was recovered in 1823 from the grounds of Caergwrle Castle, Clwyd (Meyrick 1827; Green 1985). To date it remains a unique representation in shale and inlaid gold and tin of a hide boat, probably of Bronze Age date. The decoration shows shields, oars, the frame of the boat, and waves alongside it. This type of craft was suited to a wide variety of uses including possible coasting voyages. A replica of the model was produced by Denis Sloper in the mid-1980s. This took over one hundred hours to complete (Sloper archive, Avon Valley Archaeological Society). The investment of so much time, by a competent shale worker, may suggest something of the significance of boats in later prehistory. It was perhaps not a coincidence that the model was fashioned in Kimmeridge shale, a material that was transported along the coast and river network, possibly in hide boats.

A larger sail vessel was represented by the Broighter model (Figure 8) made entirely of gold (Farrell and Penny 1975). This was complete with steering oar over the quarter and a square sail located near amidships; in addition there were nine oars along either side. This Irish model dates to the first century BC and represents what would certainly have been a sea-going vessel that would have been *c*.20 m long (McGrail 1995a, 264). Although shallow drafted, it is likely that such a large vessel

[10] This contrasts with Caesar's observation of the oak plank boats of the Veneti, constructed with flat keels that made them better suited for shallow water and low tide situations (*de Bello Gallico* III.13).

with space available for good cargo capacity would have made use of jetties and quays for the transfer of goods between ship and shore. Again, the production of a detailed model in gold perhaps reflects the importance of boats and maritime connections in later prehistory.

The combined evidence suggests that hide boats were a versatile form of craft adapted to inland water use, and larger vessels were certainly capable of making sea voyages along and across the Channel. In these ways they can be perceived as "the 'workhorse' of the maritime Celts" (McGrail 1995a, 265).

3.3.5.3 Plank boats (see Table 3)

The oldest known plank boats, other than those from Egypt, have been found in Britain (McGrail 1995a, 265). These craft are the earliest form specifically designed for use in tidal waters and at sea. Unlike log boats that have been recovered from tidal rivers and inland waters, but rarely from estuaries and coasts (see Van der Noort 1999, 134), the dated plank boats have been found in estuaries and tidal rivers close to the coast rather than on inland stretches.

These long, narrow craft consisted of oak planks linked by transverse timbers running through cleats and sewn together with withies of yew or occasionally willow. This method of fastening timbers has so far only been observed in relation to boats and was current from *c.*1500 – 300 BC (McGrail 1995a, 266). Variations within the plank built class included flat and rounded hulls, boats designed for use with paddles or poles, and sailing vessels (see below). The flat-bottomed craft (e.g. Brigg) were suitable for river and estuary use, and for carrying people and cargoes through ports and harbours. Those with rounded hulls (e.g. Caldicot, Ferriby) were more suited to open water voyages (see Van der Noort et al. 1999, 135) such as along and across the waters of the Channel. It has been calculated that the Ferriby boats would have been capable of fairly rapid transit at *c.* six knots (Wright 1990).

It is possible that the larger vessels could have been beached but, if so, due to the weight of timber, as well as cargo and crew, purpose-built landing places would have been required. Simple arrangements such as consolidated ground or hards could have been sufficient, such as the gravelled area of foreshore at Hengistbury Head (Cunliffe 1990b). The boat recovered at Caldicot was found associated with a hard composed of limestone rubble and timber staked to the river bed (Parry and McGrail 1991b). This would have provided an adequate surface for beaching the vessel and loading/unloading, possibly into waiting horse or ox drawn carts (see Bulleid and Gray 1911; McCormick and Musty 1973; Ellmers 1985).

3.3.5.4 Sailing vessels (see Table 4)
The earliest irrefutable evidence for a sailed vessel is the depiction on an Egyptian pot of a ship with a square sail, dated to the end of the fourth millennium BC (Gardiner 1995, 10), although the use of sail was probably adopted much earlier (*ibid*). Boats with sails were used in the waters of north-west Europe from some time after the mid-second millennium BC (McGrail 1993, 203). The physical characteristics of sailing boats made them useful for transporting cargo. Rowed boats were light for energy efficiency, long and narrow, and required a large crew. In contrast, sail boats were more heavily constructed to withstand the force of the wind, could be wider and so carry more cargo yet were managed with a smaller crew (Tilley 1994, 309). Prehistoric sailing cargo vessels could achieve *c*.3 – 5 knots (Davis 1997, 129). This would permit a voyage utilising maximum daylight of 8 – 10 hours to cover up to *c*.90 km (*c*.56 miles) per day in favourable conditions (Piggott 1979, 12).

By the Iron Age, it is suggested that sea-going vessels using the English Channel were mainly of the galley type (McGrail 1993, 203). These versatile craft combined sail power with rowing oars. Oars allowed headway in light winds, or even against the wind, and enhanced manoeuvrability in ports and harbours. Sail permitted longer voyages, such as the crossing of the western Channel. However, as yet there is no direct evidence from the British Isles for pre-Roman craft of this type[11], although the Broighter model (see above) represents a first century BC sea-going hide vessel with both sail and oars.

Indirect evidence does support the use of sailing vessels in the English Channel during the Iron Age. The earliest evidence of sail power in north-west Europe is provided by the references by Caesar (*de Bello Gallico* III.13) and Strabo (*Geography* IV.41) to the first century BC Venetic vessels. They described vessels equipped with leather sails and with a flatter hull design more suited to the tidal

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[11] There are numerous examples of galley vessels used in Mediterranean waters before, during and after this period (see Gardiner 1995).

waters of the English Channel than Caesar's deeper hulled Mediterranean vessels.[12] Additionally, Avienus recorded a sixth-century BC voyage between Brittany and Ireland that took two days. To travel that distance in that time would not be possible unless sail craft were used (McGrail 1993, 203). Furthermore, masted vessels were depicted on two Cunobelin coins (one from Canterbury, one from Colchester; see Figure 9) dating from the first century AD (see McGrail 1993, Figure 20.6). These each showed a large hulled cargo ship with a square sail. The Catuvellaunian tribal lands ran to the east coast, north of the Thames, (see Cunliffe 1975, Figure 7.11) but the distribution of their coins extended to the Channel coast (Cunliffe 1975, Figure 6.1). It is likely therefore that these coins depict vessels that would have been familiar in the waters off south and east Britain.

For direct evidence of actual vessels it is necessary to consider Roman examples. The earliest (yet) known sea-going sailing vessels in north-west Europe date to the second – fourth centuries AD and were found at Blackfriars, London (Marsden 1967), St Peter Port, Guernsey (Rule and Monaghan 1993), and Barland's Farm, Gwent (Nayling et al. 1994). These three were part of the 'Romano-Celtic' tradition (Marsden 1967; 1994; Ellmers 1969; McGrail 1995b), distinct from Mediterranean boat-building types. Despite their later dates, they accord in form with Caesar's descriptions of the earlier Venetic vessels (see Marsden 1967, 34-5). They were flat-bottomed with a forward mast (to allow sailing into the wind (see Tilley 1994)), and the planks of the hull were attached to the frame timbers with turned over (clench) nails.[13] Such vessels would have been capable of transporting large cargoes through open seas (although the Barland's Farm boat is considered to have been used for estuarine and coasting voyages (see Nayling et al. 1994)). In contrast, another vessel found in London, the County Hall boat (Marsden 1974; 1981), was distinctly Mediterranean in style with a rounded bottom and slightly proud keel. This was also a sea-going vessel, but more suited to the tideless

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[12] Vessels with flatter hulls could access ports and harbours along the Channel at all states of the tide, including low water. Vessels constructed for use in the Mediterranean, which is essentially tideless, had shaped hulls and deeper keels. Those features would add directional stability, but also increase the draft and weight of the vessel.

[13] J D Hill has commented that it was perhaps the development of technological processes to manufacture large numbers of 'clench nails' that made possible the use of sea-going planked vessels (J D Hill, pers. comm.).

Mediterranean. Its presence on the Thames attests to the distances these vessels and their cargoes were capable of travelling in the early first millennium AD.

The flat bottomed boats of the 'Romano-Celtic' tradition (and perhaps earlier) would not have required particularly deep water facilities compared with the round hulled and keeled boats of the Mediterranean. However, those that have been recovered were found in association with formal waterside facilities. The St Peter Port vessel was recovered from the entrance to the harbour (Rule and Monaghan 1993) and the boat at Barland's Farm was associated with an adjacent timber and stone structure: a framework of oak timbers supported a stone wall or quay from which a line of oak piles ran out into the deeper water channel. There were dumps of stone around the timbers that could have served as protection from water erosion. The stone and timber elements were interpreted as a jetty or landing stage, or possibly as a causeway (Nayling et al. 1994, 599). This site is of direct relevance to the study undertaken in Poole Harbour (see Chapter Seven).

The environment and location of the Blackfriars vessel also suggested the use of constructed facilities. It was found on the Thames, but during the second century AD the river at that point would not have been tidal (Marsden 1981, 11) so beaching would not have been feasible. Instead it is likely that the ship would have come alongside and offloaded cargo at a quay or jetty, or anchored off and transhipped goods into a local river barge (*ibid*).

From the brief summary above it is evident that a variety of craft were available for use in the Iron Age: log boats and flat-bottomed plank boats for rivers and inland waters, plank-built 'ferry' boats for rapid journeys in tidal estuaries, and hide and plank sailing and rowing vessels for the open sea. The consideration of these vessel types has revealed the along- and across-Channel capabilities of the craft with their cargoes. The association of the known vessels with site facilities has implications for the consideration of sites on the English Channel coast: although not always essential requirements of most of the vessels it would seem that formal port or harbour facilities were frequently utilised. It is suggested below that one reason for this was to deal with the cargo: to load/unload, tranship, store, and distribute goods to a wider network, that was one of the main functions identified in the coastal node model (see Chapter Four).

3.3.6 On the water: navigation and pilotage in and around the English Channel

McGrail (1995a, 272) has concluded that open sea voyages of more than two days' duration were possible in north-west Europe from 500 BC onwards. The previous section outlined the kind of Iron Age vessels that were capable of passage along and across the Channel. However, the nature of the Channel influenced how these voyages were undertaken, so determining the possible routes followed and where the coastal sites could have been usefully located.

In order to navigate with any accuracy it is necessary to know the position of the boat, the direction of travel, and the rate of passage. These factors can readily be monitored whilst in sight of land. From a deck close to the water, the horizon is typically visible at three nautical miles distant (3.5 miles; 5.6 km), while a hill or cliff 100 m high is visible from the deck at 23 nm (26.5 miles; 42.6 km) (Davis 1997, 130). These distances are increased significantly if a lookout is available above deck, such as at the masthead on sailing vessels.

Prehistoric seafarers did not have navigation instruments or compasses available to them; navigation was "more of an art" (McGrail 1995a, 273) reliant on such personal skills as memory, familiarity with the sea and coast, winds, and stars. The oral tradition of information inheritance/transfer was noted by Caesar (*De Bello Gallico* 6.14) and has been well attested (e.g. Ross 1970), and the astronomical knowledge of Celtic people was also commented upon by Caesar (*De Bello Gallico* 6.14). In distinction from historical times, during the Iron Age the North Star was not positioned above the north pole. Without this direct reference it is considered that navigators would have made use of *Ursa Major* and *Ursa Minor* which provided northern pointers (McGrail 1983). To travel by sea one had to look at the sky; not only the stars but birds too were useful indicators. Mariners recognised that the presence of birds indicated proximity to the coast, and the routes of migrating birds are thought to have been followed by early voyagers who realised that the birds would have to make landfall across the open sea (Hornell 1946).

The only 'instrument' known to have been available to Iron Age mariners is the sounding lead. This was simply a weight attached to a line and dropped overboard to ascertain both the depth of water and the nature of the sea bed over which the vessel was passing. Such local knowledge would have been part of the oral tradition amongst the seafarers. Examples of various sizes of sounding lead, dating to the first and second centuries BC, have been found in the Mediterranean (Fiori and Joncheray 1973). Herodotus (II.5.2) recorded their use, again in the Mediterranean, in the sixth century BC. However, none have yet been recovered from the waters off Britain.

Retaining land sight by day was of great importance for navigation and safety, and Channel crossings that entailed long periods out of sight of land were probably avoided. As Braudel (1972, 105) commented, the "importance of the shore was such that the coastal route was scarcely different from a river".[14] On the shortest cross-Channel route, at the narrow east end across the Dover Strait, the French or English coast is always visible in normal conditions. The eastern Channel can be crossed in a sailing vessel within a day without losing sight of land, even during the short days of winter. On the other hand, crossing the western Channel, for example from Cornwall to Ushant, would require sailing with no land sight for at least 10 hours of the voyage (McGrail 1993, 208). Therefore it is likely that, to avoid the prolonged loss of land sight, ships carrying cargoes from the west would first coast east until the crossing distance was more favourable. It is of particular significance to this study of coastal sites that Hengistbury Head at Christchurch Harbour is the most westerly port from which a daylight crossing at five knots can be made with land in sight for the majority of the voyage (Davis 1997, 133). Piggott considered that the route from Cherbourg and the Contentin Peninsula to Poole or Portland was probably also plausible (Piggot 1979, 12).

An alternative to retaining land sight was to maintain contact with other vessels in a 'boat chain'. This method is still utilised today (Davis 1997) and Davis (*ibid*) considered it a means by which small amounts of cross-Channel trade in local goods occurred during the Iron Age. Boat A sailed away from the coast but still retained land sight at, e.g. 20 nm. Boat B continued a further 7 nm keeping sight of A; Boat C continued 7 nm beyond B, keeping it in view (Figure 10). In this way vessels from southern Britain and Brittany could meet to exchange goods etc. It is a practice that permitted the exchange of small amounts of goods and other interactions, but would not be practical for major trading activity. Meeting other vessels and conducting trade/exchange as a coincidence of other journeys, including fishing trips, has also

[14] Braudel's statement referred to the Mediterranean, but is equally applicable to the English Channel.

been postulated as a means of distribution of south-west pottery away from the region in the Bronze Age (Parker Pearson 1990, 21).

Natural conditions including hazards (sand bars and rocks), tides, currents and winds all had a large effect on determining the viable routes that ancient vessels could have taken through the waters of the Channel. For at least the last 3000 years the winds in the Channel have mainly been between south-west and north-west (McGrail 1993, 203). This generally facilitates north-south and south-north passages across the Channel, albeit requiring much tacking and therefore extended journey times. The seasonal cycle of wind character would have had an effect on the timing and duration of Channel voyages (see Davis 1997, 131) with the best winds for crossing the channel from southern Britain occurring in spring and autumn. However, the return journey in those seasons would have taken longer against the winds.[15] Davis (*ibid*) calculated that a sailing vessel coasting west–east from Plymouth (Mount Batten) to Christchurch (Hengistbury Head) in January could make the voyage, with a good wind from the west or south, in *c*.28 hours. Due to variations in the winds and the incidence of storms at that time of year it could then be necessary to wait several days before conditions permitted a return trip that would take *c*.36 hours, and might have to be broken for shelter *en route*. In the summer months when winds are calmer, journeys would take longer.

Such factors suggested that the movement of goods along sea-routes was probably a discontinuous voyage. As is recorded in the Mediterranean (for example by Braudel (2001)), in the later prehistoric period there would have been halts and pauses in the journey from supply to destination to account for transport conditions. The coast was followed "crabwise from rock to rock" (Eric de Bisschop writing in Paris in 1939, quoted by Braudel 1972, 103) and "from promontories to islands and from islands to promontories" (Peter Martyr writing in 1502, quoted by Piggott 1979, 11). This required not only points of safe haven and suitable moorings, but also perhaps the storage of the goods at coastal sites in both the short and long term. Storage capabilities and facilities are key considerations in the study of the potential sites (see Chapter Four).

[15] South and south-west winds are best when crossing the Channel from north-west France to southern Britain; they are most likely to occur in January and July (Davies 1997, 131).

By considering such detail it is clear that the routes followed for the transport of goods were more complex than merely joining point of origin to point of landfall by the shortest line. Places that linked safe passage routes with safe havens as well as land and sea navigation marks had to be considered. Westerdahl (1992, 7) recorded that 'nodes' (staging posts or transit points) in Scandinavia were found at regular intervals based on the *vika* or *vikusjö* (the old Nordic rowing measure of 8-8.3 km/4 nm). The interval between nodes was *c.* four *vikusjöar* (32 km/16 nm). It has not yet been possible to identify with certainty the interval between nodes on the English Channel coast in the Iron Age.

3.3.7 Rivers and nodes: prehistoric "arteries of movement and traffic" (Sherratt 1996, 211)

One of the key elements in the nodal model developed in this study is the riverine network that linked coastal and inland sites. Section 3.3.5 above showed that various vessel types were capable of transferring goods from marine to inland zones. This transhipment occurred at the coastal nodes at the terminals of the river networks.

The importance of rivers throughout prehistory for transport, communication, and the supply of resources has long been emphasised, and they have been perceived as the "principal means of transporting goods" inland, being "much less expensive than the overland pack routes" (Sherratt 1996, 211). For transport in and around the ancient Mediterranean, Duncan-Jones calculated a ratio of 1:4.9:28-56 for the costs of sea : inland waterway : terrestrial transport (Duncan-Jones 1974; reported also in Peacock and Williams 1986, 64).

The convenience, economies and range of river transport meant that the use of the riverine network was exploited wherever possible. This use could be extended if different networks were linked by short overland hauls or portages. The routes were bi-directional: extended river networks indeed increased the range of influence of the coastal node inland, but they also increased the area from which goods, raw materials, people, and ideas might reach the coastal network. The potential importance of the riverine connections to and from the coastal site cannot be over-emphasised. Figure 11 shows the routes of the main rivers that form the start/finish points of these networks as they exit into the English Channel. Many of the rivers were not navigable for a great distance inland, but their routes offered a convenient marked line through the landscape. For example, the river Erme meets the sea at a wide estuary but is little more than a stream for much of its route from Dartmoor; however, the course of the river is easily followed by land from source to sea.

It is likely that "the desire to articulate the products of different areas into longer, chain-like routes" evolved in the Bronze Age (Sherratt 1996, 212). By the Iron Age the extended routes for transport, communication, and exchange were well established with their origin/culmination at the coastal nodes where they intersected with the coastal network. The potential of extended river networks was revealed in Bryony Coles' (1994) study. She followed Margaret Gelling's advice (1984; 1988) in linking place-name and landscape studies, and suggested looking for similarities in the use or character of rivers with names of a similar origin. For her paper, Coles used derivatives of the British river-name, *Trisantona*, which could indicate a "thoroughfare or route used in early times" (Coles 1994, 295). Her method and results are of direct relevance to this study: of the seven rivers covered, three fall within the study area and are associated with known or potential coastal sites (Dorset Tarrant; Dorset Piddle; Sussex Arun: see individual sites in Appendix One for detail).

River names have been extensively studied since Professor Ekwall's pioneering work, *English River Names* (1928). A comprehensive review of 'British' river names was included in Professor Jackson's *Language and History in Early Britain* (1953). In this he divided Britain into areas based on the survival of pre-English river names. The study of 'British' river names is useful to this research as they "are most likely to be the names of the greatest rivers" (Gelling 1988, 90) and so the names of those known to and used by Iron Age peoples. Other examples relevant to the south coast include the Avon, Dover (a 'Celtic' river name) and Lympne (*ibid*, 44; 90-2), and Stour, Wey, and possibly Erme (a possible 'Celtic' river name) (see Ekwall 1960), and the names derived from *Isca* (meaning 'water' or 'river'), the Exe and Axe (Ekwall 1960, 171; Rivet and Smith 1979, 376-8; Gelling 1988, 42).

Andrew Sherratt's more recent study of riverine networks (Sherratt 1996) suggested how the coastal networks of this study can be considered as the extension/origin of the riverine network. Sherratt specifically reported on the extended network of the three rivers Avon in southern England but in so doing included concepts relevant to the wider scale of this study, including the articulation of lines of contact, exchange relay, and goods changing ownership at points along the route. These are all applicable to the consideration of coastal networks and form part of the 'coastal node' model developed in Chapter Four.

Of particular importance to the 'lines of flow' were the 'nodal points'. As John Collis commented, the middle – late Iron Age saw the appearance of central sites through which external trade passed. The ports were an interface between maritime and riverine traffic (Collis 1994b, 135). In the present study, each relevant coastal site is considered as a node. It is at those sites that goods were transhipped for further coasting or transport via the rivers and inland: the nodes were places of interaction and transition; they were arenas of change. Vessels that crossed the Channel exchanged their cargo for the site's exports before making the return journey. The goods would have been stored at or near the site, or transferred for onward shipping in coasting vessels or inland bound river craft. At such a site, facilities for storage, movement of cargoes, refreshment and accommodation of crews might be expected, as well as the mooring, anchoring, or beaching points for the vessels, and means of monitoring and controlling transport and transactions. In their study of the distribution of Black Burnished Ware from South East Dorset during the Roman period, Allen and Fulford (1996, 257) made a similar suggestion that archaeological evidence at a 'gathering point' should include "facilities for landing, sorting, packing, and storing ... together with facilities for shelter and food storage required by the large numbers of pack- or draught-animals and their attendants". These facilities might not all be at the immediate site, but dispersed among the complex of elements that has been identified in this study as associated with coastal nodes (see Chapter Four). All these activities required security against the elements and against theft or raiding.

3.3.8 Routes and places

"... it was the routes which often made the sites worth settling in the first place"

(Sherratt 1996, 221)

An investigation of the sea-routes that linked the coastal sites is another key consideration in this study. It is important to determine what routes could have been used by vessels in the conditions of the Iron Age, as that suggests areas and points where coastal sites might have been located. Some consideration has been given in previous studies to whether the presence of a coastal site influenced the route, or if the sea-route dictated the location of the site. The answer, as Sherratt suggested (see above), is that in most cases the route would have decided where a site developed, as long as the other identified components of access and safe haven were also present. Maritime considerations were of foremost importance and, as Fox commented "it was not beyond the seafaring capacities [*of invaders*] ... to sail a considerable distance in search of unhindered entry" (1943, 19). Other sites in the hinterland and beyond (e.g. settlements, manufacturing sites, raw material locations) were linked with the main coastal sites by the network of river, overland and coasting routes. Three 'transport zones' were identified in this study – inland, coasting (along-Channel) and across-Channel – from the routes outlined below. These routes were essentially 'corridors of movement' in the maritime network.

If we now examine the wider scale of interactions, as recorded by the classical authors, trade routes from the Mediterranean have been shown to link with the English Channel routes. McGrail (1995a, 275) illustrated three such routes that suggest Britain had 'secondary contact' with the Mediterranean via France:

- along the river Rhône, portage to rivers Loire, Seine, and Rhine
- along the river Aude, portage across Carcassonne gap to river Garonne and Gironde, coast to west Brittany
- through the Strait of Gibraltar, coast along the Iberian Atlantic façade to west Brittany (see Cunliffe 2001b for detail of this route).

The Mediterranean – Rhône – Loire route was used to transport 'exotic' goods to the local 'tribal chiefs' in Armorica (Cunliffe 2001b, 69). From the shores of north Armorica it is a short crossing (one day) for those goods to continue on to the supply network in Britain. Nigel Calder (1986, 67) outlined a route for Italian wine amphorae to leave Italy and travel via the Narbonne, across south-west France to the Garonne river and on to Alet on the north-west coast. From there they would cross (see below) to Hengistbury Head (and directly or indirectly to Poole Harbour) and thence into the coasting network.

Various authors (for example, Fox 1932; Bowen 1973; Calder 1986; Cunliffe 2000; 2001b) have proposed routes, both general and specific, for along- and across-Channel interactions. These are presented as the series of maps in Figure 12, and were amalgamated into a suite of overlays from which the general trends are extrapolated (Figure 13). The traffic routes illustrated have been identified by previous authorities to explain artefact movements and distributions. They provide an excellent foundation to consider the routes along and across the Channel but ignored some of the navigation hazards and conditions encountered by Channel vessels.

Seán McGrail (1993, 200 and Figure 20.1) combined the distribution patterns of material carried as sea cargo with information from classical texts to suggest four main sea routes for transport between Britain and the continent:

- the Rhine to the Thames (encompassing the large catchment areas of these rivers)
- the Dover Strait (shortest cross-Channel passage)
- mid-Channel routes (Normandy, Brittany, and the Seine catchment area to central southern Britain – Christchurch, Poole, etc.)
- western Brittany to south-west Britain (including vessels making from or to the Loire and Garonne estuaries).

These cross-Channel routes could link with the three routes from the Mediterranean (see above).

It will be convenient to examine the English Channel in three principal 'contact sectors', south-east, central, and south-west, identified in Figure 13. These are discrete sectors in their topographic characteristics. The south-east sector is a mixture of chalk cliffs and marsh areas. The central sector is more open with long stretches of beach, wide estuaries and large, natural harbours. The south-west sector is characterised by hard rock cliffs which are cut by deep, narrow estuaries. However, there is some evidence that the coastal and international contacts of each sector also differed in character. The geography and archaeology of each area is considered in more detail in Chapter Five where individual sites are also discussed.

A number of previous studies made suggestions of more specific areas or indeed actual places that could have been the locations of coastal sites that match the nodal model. These are outlined below in the discussion of each sector. Each site identified below and from the application of the model (developed from the evidence and information presented in this chapter) is considered in detail in Chapter Five and Appendix One.

South-east sector

This coastal sector has received more archaeological attention in the past than the other two considered in this study. For that reason, the main emphasis of this research was on the central and south-west sectors (as advocated in Haselgrove et al.

2001). Previous study has determined that the south-east is distinct, archaeologically and geologically, from the rest of southern Britain and was more closely aligned with continental societies during the Iron Age (Cunliffe 1982c). The main cross-Channel axis in this area concentrated on the narrow crossing of the Dover Strait. Fox (1943) showed a route crossing from the Seine to Dover, and McGrail (1993; 1995a) depicted a route between the Seine and Spithead, and another that linked Boulogne, Wissant, and Bruges with Dover. However, most cross-Channel traffic to this area was considered to have continued to the Thames Estuary and the extensive inland access it afforded. Nevertheless, as part of those voyages to the Thames, coasting nodes and safe havens would have been required by ships travelling along the Channel, and the application of the traits model in Chapter Five identifies possible coastal locations that could have served that purpose. Roman ports developed at Chichester, Pevensey, Hastings, Lympne, and Dover (Cleere 1978). Although not all these sites have so far produced evidence of any pre-Roman activity their later use at least suggests their suitability for access by sea-going vessels. The dominance of the Thames Estuary in Iron Age cross-Channel interactions in this sector has meant that few other sites have been postulated for the south-east coast.

Central coastal sector

Sites in the central coastal sector were suggested by Hawkes (1953) as harbours between the Isle of Wight and Portland, but to date the focus of studies within this sector has predominantly been Hengistbury Head. Piggott (1979) favoured Hengistbury as the destination port for cross-Channel voyages, as did Sherratt (1996) who stated that the preferred crossing prior to the use of sailing ships (which he estimated were adopted *c.*50 BC) was the route connecting the Contentin Peninsula and the Channel Islands with central southern England, specifically Hengistbury Head and thence the inland Avon route.

As noted above, Hengistbury lies at the most westerly point to which a voyage from the continent can be completed within one day. However, although the major coastal sites of Alet and Hengistbury Head lie directly across the Channel from each other it is not possible to sail a direct passage between them due to navigational hazards, but the alternative options available to mariners indicate where other nodal sites could perhaps be located. A particular hazard encountered when leaving Alet was the Plateau des Minquiers ('The Minkies') – the drowned island twin of Jersey.

As shown in McGrail (1993, Figure 20.1), the hazard could be avoided by bearing north-east to the Iles Chausey (or possibly Jersey) and from there on to Cap de la Hague or Alderney from where the open sea crossing would commence. However, that route to the Cap or Alderney is strewn with rock hazards and is difficult to sail due to the currents and notorious Alderney Race. The alternative is to head west out of Alet, catching the tidal current towards Guernsey. This is by far the more efficient route and benefits from voyaging with the tide and currents rather than against them (Calder 1986, 75). Guernsey has been identified in previous studies as an element in the cross-Channel network, operating as an island "staging post" and safe haven (Burns et al. 1996). From there, open sea crossings to sites on the central and south-west coast of Britain, including Hengistbury, were possible for Iron Age craft.

Suggestions of links along the coast to and from this sector have already been made by the routes proposed from the south-west. Most of the routes into this sector targeted Hengistbury Head and/or Poole Harbour. Although Fox's map (1943, map preceding p28) suggested cross-Channel routes to locations at Weymouth/Portland and along the Solent, Giot (1984) illustrated the route from Alet to Guernsey to Hengistbury Head (see above), with a further coastal link to Poole Harbour, Mount Batten and beyond. That reflected the route described by Strabo (IV.5.2) (depicted in Giot 1984, Figure 2). Bowen (1972) showed the connection between Poole Harbour/Hengistbury Head and Normandy. These ultimately linked the French Mediterranean coast with the south coast of England.

A Roman route coasting east was also suggested for the distribution of Poole Harbour Black Burnished Ware, heading to Chichester, Pevensey, and Dover (Allen and Fulford 1996). However, there is little Iron Age artefactual evidence to support the link between the central and south-east sectors.

South-west sector

Many authors (including Bowen 1972; McGrail 1993; 1995a; Giot 1997; Cunliffe 2000; 2001b; Holbrook 2001) have postulated routes for goods entering south-west England, as well as coasting eastwards, often to the shorter Channel crossing points in the central southern sector.

One of the several routes mapped by Fox (1943, map preceding p28) crossed from northern Brittany into the south west; his detail suggested landing points near Falmouth, Fowey, Mount Batten, and Dartmouth. Cunliffe (2000; 2001b) also showed a route between Brittany and Cornwall, perhaps more specifically between Le Yaudet and the Lizard (Cunliffe, pers. comm.). A similar route was depicted by Bowen (1973) from northern Brittany to west Cornwall, and also from east Brittany to east Cornwall. McGrail (1993; 1995a) showed the western Channel route between Ushant and Mounts Bay and Mount Batten.

As well as cross-Channel routes, coasting routes and points along the Channel in the south-west have also been suggested. Connecting with the cross-Channel route, McGrail (1993; 1995a) highlighted a coasting route between Mounts Bay and Mount Batten and Poole Harbour, connecting the south-west and central southern sectors. A similar connection was shown by Cunliffe (1978b) who proposed a general west – east route to carry tin from St Michael's Mount, pottery from the Lizard and South Devon, silver and copper from Mount Batten, and shale from Kimmeridge to Hengistbury Head. Of course, a return journey with other cargo should be included in the scenario. As discussed above, the south-west coastal links from the central region was proposed by Allen and Fulford (1996) for the distribution of black burnished ware from Poole Harbour to Portland, Exeter, and the area of Fowey. Although this paper primarily considered Roman trade, the route and places detailed would have also been utilised in the pre-Roman Iron Age.

Similarly, Neil Holbrook's study of Roman maritime trade routes and sites (2001) provides useful hints of locations to consider as Iron Age nodes. He highlights the area of Exeter (Topsham considered below) with westerly routes to Oldaport, Mount Batten, and Falmouth, and a route east to Seaton, Poole Harbour, and Southampton.

Davis (1997) assessed the physical characteristics of 31 ports in the south west that were used from the late Bronze Age to early medieval periods (see later). He proposed harbours at St Michael's Mount, Falmouth, Plymouth, Bigbury and Christchurch (in the central sector), with coasting routes between them. The characteristics he identified at these sites were very useful in compiling the physical traits model (see Chapter Four).

By considering these general trends and routes, several potential sites in the south west were apparent, particularly St Michael's Mount, Falmouth, Fowey, Plymouth and Mount Batten, and the area of Exeter/Topsham, and these will be discussed in further detail in Chapter Five and Appendix One.

With the exception of Davis' (1997) work the routes and sites mentioned above were generally suggested to account for artefact distributions with little consideration of the viability of the sites as actual operating ports. However, they provide indications not to be ignored in this study.

This chapter has outlined the character of the English Channel and its use in prehistory and movements across and along the coast from the Bronze Age onwards. The information was collated from direct and indirect sources of both terrestrial and maritime studies. It has been demonstrated that Iron Age shipping was capable of following various routes across the Channel and would have required safe havens or staging posts on the coasting routes. The points on the coast that linked the maritime with the riverine networks, where goods and people were transhipped from the sea-going to the inland-bound vessels (and vice versa), have been considered as possible nodal sites for further study (see Chapter Five and Appendix One for individual site details). The combination of the information gathered is used in the following chapter to build a model of coastal nodes that is then applied to the Iron Age coast and tested in the case studies.

Chapter 4

Nodes and arenas: modelling sites of coastal interactions

4.1 Introduction

The sources and classes of the wide variety of evidence utilised in this study were examined in the preceding two chapters. The different strands were combined to approach the overall aim of this study: to consider the locations of Iron Age sites on the south coast of Britain and how they might have interacted. Within this chapter, the collated evidence is applied to produce a model of the physical characteristics of the sites. This examines the characteristics at two different scales, the immediate coastal vicinity, and the wider hinterland within five kilometres of the coast. The model is compared with the data gathered from the coastal SMRs, a detailed map search, and the consideration of Iron Age topography and coastline in order to identify possible sites on the English Channel coast.

The physical traits model has been compiled from the natural and artificial characteristics that were identified at the known coastal sites and those deemed necessary for use of the sites by Iron Age shipping by other authorities. This resulted in a list of common physical features, outlined in section 4.2 below. The second part of the physical model was based on an examination of the wider area around the sites. It was observed that within a radius of *c.* five kilometres, a common group of other features or types of site could be identified that possibly operated in association with the coastal site. These were combined into a complex or suite of elements (see section 4.3 below).

Coastal interactions and trade in the Iron Age will not have been limited to the few sites currently known. In prehistory, as now, different scales of harbour facilities will have served different needs on different scales. A variety of coastal site types incorporating breakwaters, waterfronts, and other artificial facilities are known from the Mediterranean from the early first millennium BC and probably before (Casson 1971, 361-70) (for example, Carthage, Masallia, Ostia, Puteoli, Piraeus) and there is no reason to suppose that the English Channel was less well served with maritime facilities. As well as such large sites with established harbours, smaller sites will have provided temporary safe havens on long coasting voyages or local trading activities. These sites were of different sizes, with different characteristics, infrastructure and features: the coast varied and the sites along it were also different. Further, different needs were addressed and there were different scales of operation with both informal and formal sites. As David Tomalin commented regarding coastal sites in the Solent, "One explanation for the development of early maritime traffic in the Solent could involve a variety of modest coastal trading centres based upon a loose and variable choice of landing site" (Tomalin 2001a, 29). However, they all required particular natural conditions that were often enhanced by artificial developments. The consideration of those features formed the basis of the model; the application of the model to the coast identified where Iron Age 'coastal node' sites might have been located, where seagoing vessels met the inland river boats to tranship goods and exchange their cargoes.

4.2 Physical characteristics of Iron Age coastal sites

The basis for the model of Iron Age coastal node sites was developed from the many sources outlined in preceding chapters. The key criteria were distilled from earlier works to determine the characteristics of a viable coastal site, consideration of the effective elements of known sites, as well as the factors arising from vessel requirements and maritime studies. The criteria can be grouped into considerations of accessibility, visibility, shelter, and infrastructure, and these are considered below. Nine key criteria or traits were identified and then applied to the map search, and topographic and physical coast considerations (see Chapter Five below). They were relevant both to large, cross-Channel sites, and to the smaller nodal points utilised on coasting voyages.

4.2.1 Access from the sea and inland

Access from the sea

A position on the coast suitable for access by sea-going vessels is a principal consideration for any potential site. Tides, currents and any hazards (rocks, sand bars, etc.) on the approach are key elements in the selection of coastal nodes. In addition, the location of a site on or near a known along- or across-Channel route, or in the vicinity of finds of imported material that was likely to have been transported by sea were further indicators of its potential use.

Rivers and estuaries

Only a few of the potentially viable harbours and anchorages along the coast became major ports. There would have been many reasons, including prevailing socio-political considerations such as group boundaries and territorial foci, which might affect the use of a physically viable site location. However, an essential factor in the use and development of coastal sites was access to inland transport, of which rivers were most important. The riverine routes provided access inland for the two-way movement of people and goods. An ideal port location was near the mouth of a great river with access to large territories for goods carried by boat in antiquity as today (Calder 1986, 67), and Seàn McGrail summarised that "the preferred inland routes to and from international landing places would have been the rivers" (McGrail 1995a, 277). However, not all rivers were navigable far from the shore but their route through valleys and often up to high ground sources would have served as 'pathways' that overland travellers followed as the most effective route to or from the coast (e.g. the rivers Avon and Erme in Devon).

4.2.2 Visibility and prominence

Promontories and headlands

Areas of ground projecting from the coast, particularly high ground, appear to have been favoured as site locations. This criterion essentially covered sites classified as 'promontory forts' or 'cliff castles'. Such areas were easily demarcated (e.g. Hengistbury Head, Dorset), offering advantages of security and defence, as well as distinction or possible neutrality. The prominent topography of such places made them easily identifiable to vessels at sea, as well as offering good visibility from the land of the approaches along the coast. In addition, they often provided shelter from the prevailing winds (see 4.2.3 below).

Land and sea marks

Other prominent land marks were also a key characteristic: the site, or its approach, had to be identifiable from the sea. In this regard, as well as headlands and promontories, islands were particularly advantageous, as were discontinuities in the coastline such as estuaries, breaks in cliff lines, etc. Examples that are often cited include Ushant, Cap de la Hague, Cap Gris Nez, Portland, Start Point, and the Lizard (McGrail 1995a, 276). However, as with the consideration of excavated sites, these are the major, obvious examples. Looking more locally along the coast there are many useful land marks and way points such as Dodman Point in Cornwall, Burgh Island and Bolt Head in Devon, Lulworth Cove in Dorset, and Dover in Kent, etc.

4.2.3 Safety, security and defence on land and water

Shelter from the elements

Coastal locations are vulnerable to assault from the sea, wind, and storm conditions. Both the anchorages and moorings and the land-based facilities required protection from those assaults. In some cases, that was provided by high ground as at Hengistbury Head, where the mass of Warren Hill sheltered the anchorages and beaching points in Christchurch Harbour and the 'port' settlement that was located in the lee of the hill. Other sites were located on the edges of natural harbours or estuaries that offered protection from the open sea, e.g. Dover where the site was in a protected location within the river valley rather than immediately on the coast. Other sites were artificially enhanced by the construction of moles and breakwaters to provide shelter for vessels on the water and to demarcate port or harbour areas.

Safe haven

To offer secure anchorages and moorings a coastal site needed to offer protection from the prevailing westerly winds, as well as calm waters away from tidal races and strong currents. These factors were especially important for beached boats to avoid being driven too far or too fast onto the shore and to enable them to put to sea without having to face a strong headwind. Similarly, anchorages needed to be protected from strong winds which might cause ships to drag their anchors. The concept of a 'safe haven' derived directly from the need for shelter (see above), but was also noted as a specific maritime indicator.[16] For example, at Lulworth Cove, Dorset, the main known activity was at the cliff top site of Bindon Hill. However, the cove itself provided an excellent safe haven in an otherwise exposed stretch of the coast.

The geography of the coastline determined the naturally safe havens that were protected from the forces of tide, wind, and flooding. These included the Solent, Christchurch Harbour, Poole Harbour, and Plymouth Sound (see McGrail 1995a, 276). Davis (1997, 236) suggested that sites with beaches facing in opposite directions and good land connections had similar advantages "and are worthy of further investigation".

4.2.4 Accommodating vessels, people, livestock and goods

Beaching points and waterside facilities

Whether approached by river or by sea, the coastal sites had to offer facilities for safe access by vessels of the period. Some of the sites had informal, natural beaching points but others required artificial enhancement to provide shelter, improve soft ground for beaching, and provide mooring points and access to the main water channels with waterfronts, quays, jetties, etc. Such facilities have been recorded at a number of sites throughout Britain (including Ferriby (Wright 1976; 1990); Caldicot Lake (Parry and McGrail 1991a; 1991b); Barland's Farm (Nayling et al. 1994); and Fiskerton (Field and Parker Pearson 2003)). However, on the south coast, few formal facilities have yet been identified or recognised from the Iron Age although a gravel hard was identified on the shore of Christchurch Harbour at Hengistbury Head (Cunliffe 1987), and the current work in Poole Harbour has identified two features that have sometimes been interpreted as jetties (see Chapter Seven).

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[16] There was a requirement for safety on land as well to protect the site, people and contents from attack and theft, as well as normal site requirements of shelter, communication routes, access to resources, fresh water, etc.

Storage and facilities for people and livestock

Many of the coastal sites were involved in trade and/or exchange. The scale of such interaction varied from local supply to major international trade. There were requirements for the safe storage of cargoes: locally produced exports amassed from the hinterland, goods off-loaded from one vessel awaiting transhipment to another, and imported goods awaiting onward distribution by land, river, or coasting voyage. The type of storage required depended on the type of goods dealt with that generally included foodstuffs, raw materials and livestock. These could be accommodated and protected within local enclosures as identified on Furzey Island in Poole Harbour (Cox 1988).

4.2.5 The physical traits

In summary, the nine key physical traits or characteristics of an Iron Age coastal site that provided the four basic site requirements outlined above have been identified as:

- position on the coast with favourable tides and currents, and safe and easy entrance that was free from hazards at a location accessible from the known along and across Channel routes
- access to river/s was essential, often via a tidal estuary/harbour
- promontory or headland location to serve as a sea-mark, demarcated area, and to offer shelter (to vessels on the water and facilities on land)
- presence of a prominent land mark identifiable from sea (if not a promontory or headland location)
- shelter from winds, especially the predominant westerlies
- safe haven with good anchoring/mooring locations, often in a harbour, with space for manoeuvring vessels
- beaching points and/or formal waterside facilities such as jetties, quays or maintained hards
- capacity for securely storing imports and exports
- capacity for facilities to serve people and pack animals.

The above list indicates the physical characteristics that were used to identify potential sites from the cartographic search and review of SMRs and published sources. Not all traits were required or present at each location. Once potential sites were identified they were also investigated for two other elements of evidence that were apparent from the development of the physical traits model:

- relevant contemporary finds in the vicinity of the site, and
- evidence of Iron Age manufacturing activity at or near the site.

Although not essential at every site, these were noted at some and provided further indications of the likelihood of a 'coastal node' role at a proposed location.

4.3 Hinterland elements near Iron Age coastal sites

The previous section detailed the topographic indicators combined as a model of physical traits from which possible coastal site locations themselves can be identified. The second scale of the model was constructed from a pattern of further elements, in various combinations, at and in the vicinity of the coastal sites (within a five kilometre radius of the coast). These were defined as a 'complex' or 'suite' of associated elements.

The complex comprised some or all of the following elements:

- the primary coastal site, usually associated with a river or estuary
- local enclosures of certain or probable Iron Age date
- an offshore island, possibly connected by a causeway to the mainland
- a high ground element (enclosure, hillfort) within a five kilometre radius of the coast.

Not all of the complex elements are present near each of the identified nodal sites. Table 5 shows the matrix of these representations at each of the sites identified in Chapter Five (and see Appendix One) on the English Channel coast as possible Iron Age coastal nodes. Each element is outlined below.

4.3.1 The primary coastal site

The primary component of the complex was the waterside site itself whose elements are reviewed in 4.2 above. As has been suggested, these were of varying scales of size, composition, and utilization. The functional aspects of these sites also varied, but included informal beaching points, safe havens for coasting voyages, deep water jetties, or other arrangements, to large, international ports with associated trade functions and supporting settlement and manufacturing activity.

The proximity of a navigable river giving access to inland routes was identified at most sites. The primary element may have been on the shore of the river, or close to the point where the river met the sea or harbour. The inland riverine network is thus of major importance for the nodal function. Those sites that were not located near rivers (for example, Lulworth Cove in Dorset) were probably not established for trade but as safe havens and 'stop-over' points.

4.3.2 Local enclosures

The second component was the presence of enclosures: these were either at the main site itself or very near and often associated with either the island or high ground element, e.g. Mount Folly at Bigbury Bay, Devon (see Chapter Eight). The enclosures had many different functions, including storage, market area, settlement, manufacturing, etc. These were at various distances from the coastal site, at locations better suited to their particular function, but close enough to the coast to make use of the resources/transport/communication.

The enclosure element of the complex is one of great variety in location, form, and function. Many of the other elements are themselves enclosures – the associated high ground sites and some of the primary coastal sites; others contain enclosures, as on Furzey Island and at Ower in Poole Harbour (Chapter Seven). However, enclosures are also found distinct from the other elements as at Mount Folly (Chapter Eight).

The form of the enclosures can vary from simple, curvilinear outlines as at Hengistbury Head, to complex, multiple ditched sites as at the 'hillfort' sites of Hastings and Seaton Down. However, most of those considered herein have been of simple, rectilinear form. Known (but generally undated) enclosure sites have been plotted for Cornwall (Griffith and Quinnell 1999, map 7.1) where over 200 exist as earthworks, and over 1000 more have been identified through aerial reconnaissance: *c.*10% of both sets lie within five kilometres of the south coast of the county. A similar ratio is presented for Devon (*ibid*, map 7.4; F Griffith pers. comm.). Since the early 1980s, 80% of lowland settlement evidence for the south-west (Cornwall, Devon, and Somerset) has come from the recognition of cropmarks from the air, and by rescue archaeology (Griffith 2002, 264).

Aerial reconnaissance has significantly redefined the pattern of settlement and enclosure especially in the south-west, particularly during the past two decades (see Griffith 1994 for summary). Many hundreds of enclosure sites have been identified along the south coast. However, as the majority are of simple form, it is not generally possible to ascribe a date based on the aerial photograph alone. Further survey and excavation are required to determine when these sites were used (as undertaken at Mount Folly, Chapter Eight). However, attempts have been made to classify the enclosures based on their two-dimensional form (Edis et al. 1989; Arbousse Bastide 2000; and see Langouët and Daire 1990) but, although this may be a valid starting point, the morphological approach is problematic (see Griffith 2002) and cannot determine the date of a site.

4.3.3 Offshore island

Many of the sites identified had an offshore island in close proximity that was recognised as part of the complex or suite of associated elements. The function of each island matched one or more of the traits identified above. In some cases it was the 'node' site (e.g. St Michael's Mount); in others it was part of the complex providing a defensible area, safe haven, shelter for boats, storage for goods, and perhaps a manufacturing area or other function. In other cases, particularly where the offshore element was rocky or otherwise unapproachable, or small, the island served as a land mark, easily identifying the location of the nearby coastal site from the sea. It might also have operated as a lookout/beacon site, but there is as yet no evidence for such use.

There has been little research into the use of islands (exceptions include Evans 1973; Scarre 2002), which is perhaps surprising given how many there are in the English Channel, as well as around the British coastline as a whole. Their marginal settings would set them apart as places of distinction in the liminal coastal zone. The effect of tides would further enhance their variety, particularly those with low tide causeway connections to the mainland (see below). When discussing the distribution of burial cairns in the Orcadian island group, Fraser (1983, 306) observed that the "shore is the focus of activity for almost every human pursuit".

A variant of the island site was semi-island sites. These were connected to the mainland at low tide by a causeway lying between two hard, sandy beaches. Natural causeway sites with low tide connections to the mainland are found at Burgh Island in Bigbury Bay, Mount Batten, and St Michael's Mount. It is also considered in this study that earthworks constructed to demark promontories permitted the area 'within' to be perceived as, or function as, an island (for example, Warren Hill at Hengistbury Head (see Chapter Six)). In this regard, islands and promontories take on an enhanced significance as elements in the coastal trading complex.

In considering Bronze Age cross-Channel connections, David Tomalin[17] stated that island communities played a "critical role in the maintenance of cross-Channel contact" (Tomalin 1988, 212). This role continued in Iron Age cross-Channel (and along-Channel) relations. They are naturally demarcated areas,[18] isolated as places of safety and perhaps for storage. In the classical account of the journey of Pytheas, islands such as Gadir (off Spain) and Mogador (off Morocco) are named as safe places of neutral territory (see Cunliffe 2001b, 77). It is suggested in this thesis that islands and promontories of the English Channel could have served similar functions.

4.3.4 High ground enclosures

The fourth component, a high ground element, occurred with regularity at 29 (72.5%) of the 40 identified sites. This took various forms. High ground elements in the immediate vicinity of the coastal site included enclosures and promontory forts or cliff castles, such as Bindon Hill above Lulworth Cove, Dorset. Like islands, these provided demarcated areas of perceived safety for storage and specific functions. At Hengistbury Head, Iron Age hearths were identified on top of Warren Hill and interpreted as part of an early pre-Roman Iron Age settlement (Cunliffe 1987, 336).

In other cases, the high ground element was not in the immediate vicinity, but generally found within a five kilometre radius of the coastal site, such as Bulbury

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[17] Tomalin (1988) suggested the Channel Islands fulfilled an intermediary role between Armorica and Wessex whilst retaining independence from both. These are large islands, some distance from the coast. This study also considered the smaller, near-shore and inland water island sites.
[18] In the cases of promontories isolated by earthworks the demarcation was artificial.

Hill near Poole Harbour (see Chapter Seven), St Catherine's Hill near Hengistbury Head (see Chapter Six), and Yarrowbury near Bigbury Bay (see Chapter Eight). Many of the high ground sites have been classified as a 'hillfort'.[19] The term 'hillfort' and the interpretation of such monuments have been extensively debated (for example, Rivet 1961; Cunliffe 1994a; Hill 1995a; 1995c; 1996; Fitzpatrick 2001). Within this study the term 'hillfort' is used when it has been previously applied to a site and interpreted as meaning a ditched enclosure of 'defendable proportions' on high ground. Andrew Sherratt suggested that the consideration of hillforts is important in the development of understanding how sites might have interacted as they were important "corridors of movement" along the 'nodal network' (Sherratt 1996, 221).

There are characteristics common to the high ground elements observed in this study. The majority, even those at some distance from the coast, overlooked the coastal site and the marine and riverine routes to and from it. As such they could have operated as points to control access, as well as serving as sites for social/political/economic functions. Slightly removed from the immediate vicinity, these sites were away from the bustle and traffic of the coastal location and were in no danger of flooding or of raiding from the sea. Those were important considerations for areas of secure storage.

4.4 Summary

In this chapter, a physical model of coastal nodes has been constructed in two parts, each relating to a different scale of node characterisation. The first part, at the local scale, described nine physical traits which might be expected at a node site on the coast, based on topographic and maritime requirements. The second part of the model defined four elements, or types of site, which might be expected at the wider scale within *c.* five kilometres of the coast. It is suggested that these other elements were directly related to the coastal node.

The postulated physical traits model is applied in the following chapter to identify Iron Age nodal sites on the coast (see also Appendix One), with regard to

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[19] In this study the term 'high ground enclosure' is used to denote all enclosed areas (demarcated by bank and/or ditch) located on high ground, some of which were formerly classified as hillforts.

the nature of the coast outlined in Chapter Three, and then tested in three case studies, detailed in subsequent chapters.

Chapter 5

Iron Age coastal sites: introduction to possible site locations on the south coast of Britain

5.1 Introduction

The previous chapter reviewed the criteria for the definition of a 'coastal node' site in the Iron Age, and proposed a set of key characteristics that would identify them. The next stage of this research was to examine the south coast of mainland Britain and to identify the 'definite', 'probable' and 'potential' coastal node sites. As defined in section 1.3 above, 'definite' sites are known, from established study, to have been used as coastal sites in the Iron Age; 'probable' sites conform with the physical traits identified in the model and have other evidence, such as contemporary imports, to suggest a functioning coastal site; and 'potential' sites match the physical characteristics but to date have not been investigated or have no other evidence to suggest their Iron Age use.

Because of their volume, all the data resulting from this analysis are presented and discussed in Appendix One which should be read in conjunction with the present chapter. This chapter reviews the physical and archaeological basis of the three sectors (south-east, central, and south-west) introduced in Chapter Three (and see Figure 13), and then proceeds to provide an outline review of the geology, topography and archaeology of the south coast from Dover to Land's End with an emphasis on the accessibility of the coast from the sea and from the hinterland. The coastal node sites themselves are mentioned in context and summarised in Tables 5 and 6, but for further detailed discussion and their correlation with the suite of characteristics discussed above the reader is referred to Appendix One.

5.2 South-east sector

"In view of its geographical situation the south-east was open to the fertilization and cross-fertilization of almost every influence that the sea might bring"

(Jessop 1970, 16)

During the Iron Age, the short sea crossing between the continent and this sector has been demonstrated to be a main route of movement for people, goods, and ideas (Champion 1980; Cunliffe 1982c; Drewett et al. 1988). The route via the Thames Estuary increased the extent of inland access. Continental influences in the south-east regions of Kent and the Thames Basin are evident, for example, from the distribution of Iron Age material, including 'onion shaped urns' very distinct from the 'saucepan pots' of the southern central sector. An overlap between the two styles is apparent in East Sussex (Cunliffe 1982c, 42). However, for this study it is the interactions with and along the south coast that provide the focus of interest.

This sector covers the coast from Dover to Chichester Harbour, including the counties of Kent, West Sussex and East Sussex to the border with Hampshire. The area has been subject to much development in recent times with extensive housing and road schemes that have provided new archaeological information from rescue excavations.

The coastal counties of Sussex and Kent are distinguished from the surrounding areas by their shared natural features and physical characteristics. The sector is naturally defined by the Hampshire Basin to the west, the Thames Estuary to the north, and the English Channel to the east and south. The dominant physical features within the south east sector are the two massive chalk ridges of the North and South Downs surrounding the Weald. The southern coast is characterised by chalk cliffs, interspersed with low-lying marshland, as at Romney and Pevensey. From the coast, the valleys of the rivers Adur, Arun, Cuckmere and Ouse cut back and up into the chalk of the South Downs.

The axes of movement through the south-east sector are governed by the natural features. The Downland ridges permit east – west movement; long distance routes, such as the Pilgrims' Way, connect the coastal site of Dover through Kent and Sussex to Hampshire where it connects with the Harroway leading into Wessex. The inland riverine and ridge routes are characterised by the occurrence of hillforts[20] that have been interpreted as 'oppida' at key locations including Bigbury on Stour, Quarry Wood and Castle Hill on the Medway (Drewett et al. 1988, 162). The Iron

[20] The hillforts in the south-east region are considered to have developed much later than those in the central and south-west sectors (Cunliffe 1982c). Hillforts in west Kent and Surrey have been dated to the late fourth century BC whereas those in Wessex and West Sussex date from the first half of the first millennium BC (*ibid*, 43).

Age hillfort at Bigbury on Stour was on the main overland and riverine passage from Kent; Belgic coins have been found at several locations along the passage route (*ibid*). It has been suggested that Oldbury served a 'port of trade' function with the hillforts to the west (Cunliffe 1982c, 46). North – south movement through the region was facilitated by the rivers by which people and goods could travel to and from the coast, inland. A network of natural waterways connects most areas of this region.

5.2.1 Kent: topography and archaeology

The southern coastline of Kent extends for *c*.120 km (*c*.75 miles) along the High Water Mark between Dover and Rye. The present principal ports are at Dover and Folkestone, but in antiquity and through to the early modern period, Hythe was also a useful navigable harbour. The nature of the archaeological evidence recovered from the county has caused it to be linked more with eastern Britain and the continent rather than neighbouring southern areas (Cunliffe 1982c). The Iron Age sites of Aylesford and Swarling were among the first to be interpreted as actively involved in cross-Channel connections (A Evans 1890; Bushe-Fox 1925; see sections 2.2.1 and 2.2.2 above). The proximity of the county to continental Europe, just 34 km (21 miles) away across the Strait of Dover, provided advantages for trade and cross-Channel contacts.

Kent was densely settled during the Iron Age (Cunliffe 1982c, 42; Drewett et al. 1988, 119). The period saw rapid social and economic development in this area, with many aspects of Iron Age culture developing from Bronze Age origins, including the construction and use of hillforts and pottery forms and styles (Drewett et al. 1988, 119).

The Kent coast consists of littoral marshes and cliff-backed beaches that vary from rocky to sandy. The distinctive white chalk cliffs either side of Dover rise to over 100 m and directly abut the shore in many places. They retain an intense white appearance due to constant erosion which reveals fresh chalk. The extent of erosion has led to much change along the coast since the Iron Age: for example, Shakespeare Cliff has been cut back by approximately one mile over the past 2000 years (V. May, pers. comm.). Similar erosion across the Strait has been recorded at Cap Gris-Nez, formed of the same Cretaceous deposits.

West from Dover the cliffs become lower between Folkestone and Hythe, where flat lands of coastal marshes begin, leading to the much altered coastline at Romney Marsh. Tooley and Shennan (1988) have identified six distinct episodes of rise and fall in sea-level in this area during the past 900 years alone. This makes it difficult to map the Iron Age shore and identify possible site locations from topographic detail. Here, the flat expanse is now criss-crossed with drainage channels and fringed by sandy beaches that give way to vast shingle banks in the area where the nuclear power station at Dungeness now stands. The geomorphology of Romney Marsh and Dungeness has been summarised by Eddison (1983), and Cunliffe (1988c) and Margary (1946) have produced speculative maps of the coast and river channels in the Roman period. It is likely that the river Rother extended its course to exit into Romney Haven (Tooley 1990, 12). The huge changes to the coastline in the Romney area have masked the earlier form of the coastal zone; ongoing investigation (Eddison and Green 1988) suggests that the area has much to offer to the consideration of Iron Age coastal sites.

Despite its proximity to the continent, the offshore hazards and extensive cliff coastline of Kent could have made much of it unattractive for prehistoric mariners. However, the attractiveness of Dover as a port location today would have been enhanced in pre-Roman times by the tidal Dour Estuary, then wider and offering both a safe haven and access to inland areas. Three coastal sites have been identified in Kent – Dover, Folkestone and Hythe. The sites are outlined below (with additional detail derived from observations and subsequent calculations of former sea-level in the Dover area) and detailed in Appendix One.

Dover (Site 1)

Dover is the easternmost site considered in this study. It is traditionally known as the 'Gateway to England' and has served as a cross-Channel port since prehistory. It is located in the only gap evident from the sea in over 20 miles of chalk cliff. The gap is the entrance of the narrow valley of the river Dour, now little more than a stream *c.*8 m wide and less than one metre deep. However, two thousand years ago it formed a large tidal estuary over 200 m wide (Philp 1981, 108). The break in the cliff and the river entrance were recognisable features from the sea and offered a sheltered haven with riverine access leading inland from the coast.

An early Roman quay and jetty at Dover, whilst later than the Iron Age consideration of this study, provide useful comparison with other sites in the south, particularly the 'jetty' structures in Poole Harbour (see Chapter Seven). Additionally, the early presence of those and other formal waterside facilities suggest something of how the Dover port could have functioned in earlier times.

The waterside features at Dover were dated by association with pottery finds, the majority of which were early Roman. Iron Age material is also known from Dover (Rigold 1969; Drewett et al. 1988) and use of the area at that time is evident on the Eastern Heights where a major hillfort dominated the mouth of the estuary. The hillfort, Roman and Bronze Age evidence of use of the coastal area, shelter for shipping and inland access via the Dour estuary, as well as the location of Dover at the break in the cliff line at the end of the narrowest Channel crossing suggest that it is a **'probable'** Iron Age coastal node.

(It is useful to break here to consider in detail the implications of the Dover waterside observations on former sea-level reconstruction. A Roman breakwater examined by Rigold (1969, 82-3 feature 3; see Figure 14) was one of the prime examples presented by Waddelove and Waddelove (1990) to illustrate their method of calculating former sea-levels (see Chapter Three). The top of the structure was at the level of Newlyn Ordnance Datum (i.e. at zero mOD). By allowing a margin of 0.3 m, as considered appropriate for such a structure, they suggest that the early Roman Highest Astronomical Tide (maximum tide level) at Dover was *c.*-0.3 mOD. The current level of HAT at Dover is 3.63 mOD, so this suggests a rise in HAT levels in the Dover area of *c.*3.93 m (Waddelove and Waddelove 1990, 259). Similar results were obtained by Toft (1992). The sea-level rise was probably not consistent through the centuries. It is likely that at first the rise was rapid, according with the Roman marine transgression, and suggested by the rebuilding of some of the waterfront structures at Dover at that time (Waddelove and Waddelove 1990, 265). The information derived from the earlier studies can be applied to give approximately the HAT in the late Iron Age. The mean of the HAT increase of *c.*3.93 m over approximately 1950 years is *c.*2 mm pa. Therefore, in 100 BC during the late Iron Age, HAT would have been 300 mm lower than the early Roman level, suggesting a late Iron Age HAT at Dover of *c.*-0.6 mOD. This is a very coarse estimation that does not take into account factors such as the rate of sea-level change and assumes that the direction of change was consistent, but it serves as an indication of the level of water available to Iron Age shipping.)

Folkestone (Site 2)

Approximately 10 km west of Dover is the town of Folkestone. Today, the Folkestone area is also engaged in cross-Channel traffic, both waterborne and via the Channel Tunnel link that emerges immediately north of the town. It is likely that in the Iron Age Folkestone served a similar nodal function for mariners and travellers on the Pilgrims' Way ridge route that passed on the chalk ridge behind the town.

Folkestone has been identified as a **'potential'** node due to its prominent position on the convex (and so sheltered) coast, with the river providing access to the interior, its proximity to the Pilgrims' Way, and the high ground enclosure of Caesar's Camp (classified on the SMR as an Iron Age hillfort) on Castle Hill, three kilometres north-west of the harbour. This is located on the very edge of the chalk downs, giving excellent views over the river mouth and Channel approaches. The site was later remodelled as a Norman motte and bailey castle.

Hythe (Site 3)

Hythe lies approximately seven kilometres west of Folkestone. It is now sheltered to the west by the reclaimed areas of Romney Marsh and Dungeness. The area is very flat with stony beaches and has been much altered by canalisation[21] and land reclamation from the nineteenth century onwards.

Today, the area does not match the physical model particularly well. However, in the medieval period, prior to the reclamation and canalisation schemes, the river ran into a harbour that had a narrow, sheltered marine entrance (subsequently silted) and formal hards that were constructed and used for beaching boats. A similar role could have been facilitated in the Iron Age as the SMR lists finds of Belgic pottery and Iron Age coins in the area (see Appendix One). On this basis it has been classified as a **'potential'** site.

[21] The Royal Military Canal was constructed in 1804-7, and runs from Seabrook near Hythe in Kent to Pett Level in East Sussex.

5.2.2 East and West Sussex: topography and archaeology

The coastline of Sussex extends for *c*.350 km (*c*.215 miles) between Rye and Chichester Harbour. Today the area is divided into two administrative units, East Sussex and West Sussex, with a Unitary Authority at the major population centre of Brighton and Hove. However, the landform, coastline and topography do not conform to those distinctions, so Sussex is considered in this study as a single area within the south-east sector.

As with Kent, the prehistoric affinities and relationships of Sussex (particularly the eastern areas) were more closely directed to the adjacent areas across the Channel rather than to neighbouring areas in southern Britain.

The Sussex coast is topographically very varied, with sheer cliffs at Beachy Head, stone and shingle beaches, area of marsh and reclaimed land, and tidal estuaries and inlets. A thorough review of the current state of the coast and the long-term processes of natural and artificial change that have affected it over the past 500,000 years has been presented by the East Sussex County Archaeologist, Andrew Woodcock (2003). He reported that the Sussex shore was relatively stable through the Bronze Age, but at the end of that period it underwent dramatic change. An apparent increase in sea level caused marine clays to be deposited up river valleys, sealing peat layers and rendering sites unusable, as at Shinewater (Woodcock 1995). Woodcock (2003) examined radiocarbon dates from the sealed peat layers and concluded that the marine transgression of the late Bronze Age/early Iron Age could be observed over a period of approximately 1400 years. This suggested that the Iron Age coast of Sussex was very indented and sea water was able to flow considerable distances up the lower river valleys. The majority of the coastal plain today consists of a fertile brickearth (Bedwin 1978, 48).

The Iron Age archaeology of Sussex is similarly varied. It contains 20 defined hillforts that range in size from Belle Tout (25 ha) to Harrow Hill (0.4 ha). To the west of Shoreham and the river Adur, there is at least one hillfort between each pair of rivers; Bedwin (1978, 45) considered these were the foci of trade and cross-

Channel interactions[22]. All the hillforts in Sussex seem to have been abandoned *c.*100 BC, approximately 150 years prior to the Roman conquest. Bedwin suggested that the abandonment of the site by native people was the result of the arrival of the Belgae (*ibid*).

In Sussex, agricultural activity and settlement has been continuous since at least the Bronze Age; however, although there is extensive evidence for Roman settlement, there is comparatively little for Iron Age occupation (Bedwin 1978, 48). Bedwin (*ibid*) suggested that this was not due to the absolute absence of Iron Age sites, but to the problems of finding and identifying them. Aerial reconnaissance has been of limited effect in this coastal zone and no Iron Age coastal earthwork enclosures are known in this area. In addition, the acidic soils result in little pottery surviving. Due to the lack of accessible evidence, Bedwin concluded that knowledge of the Iron Age of the coastal plain of Sussex is at present limited (*ibid*).

There are, however, many indicators of coastline and coastal zone use in the Roman period. Pitts (1979) detailed the background to the Sussex museums and collections, especially material from Chichester. He presented a gazetteer of Roman sites on the coastal plain between Chichester Harbour and Littlehampton with a map that illustrated the distribution of Roman sites along the Sussex coast. However, he cautioned that the maps were not meant to be "an accurate representation of the Roman coast-line" (Pitts 1979, 68) and acknowledged the difficulties in reconstructing former shorelines.

Nine possible sites have been identified for consideration along the Sussex coast.

Rye Bay (Site 4)

The first site to be considered from the east in Sussex is at Rye/Winchelsea. Rye Harbour has changed considerably through time and is now isolated from the sea by reclaimed land. The rivers Rother and Bede meet immediately east of Rye and follow a canalised route through the reclaimed zone to meet the sea at Camber Sands. This area is on the west of Romney Marsh, known to have been inhabited in the late Iron Age (Jessop 1970, 23; Cunliffe 1988c; Woodcock 1988). The Rye-

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[22] The shorter Channel crossings between Kent and Sussex and the continent are thought to have been under the control of the continental Morini tribe, and may have been based on trading relationships *(footnote continued...)*

Uckfield ridgeway route passes close to the coast and could have provided inland access in the Iron Age (SuSMR 402393). The area has been identified as a **'potential'** site due to its sheltered location on the coast and inland riverine access.

Fairlight (Site 5)

Approximately seven kilometres (*c.*4.3 miles) south-west of Rye, beyond the Pett Level and edge of the marsh zone, is Fairlight Cove. This has a stony sand and mud beach facing approximately south-east and is protected to the west by the curve of the coastline and offshore rock ledges. As well as the suitable physical location, a **'potential'** coastal node site is suggested here on the basis of stray finds from the area (see Appendix One). These include a late Bronze Age spearhead found on the shore near Pett, *c.*15.25 m (*c.*50 feet) below HWM (SuSMR 969494; Manwaring Baines 1973), and late Iron Age pottery found at Cliff End beach around a spring (SMR 969385). Other finds from the area may be associated with a possible Iron Age building at Covehurst Bay (SuSMR 968487), *c.*2.5 km further west along the coast.

Hastings (Site 6)

Beyond Fairlight to the west, the coast becomes more rocky with cliffs running to Hastings. An Iron Age hillfort, prominently located on East Hill, overlooks the approaches along the Channel coast (Hogg 1975, 203-4). Approximately one kilometre to the west is the site of Hastings Castle (SAM 12869) occupying a rocky promontory. The main bank of the Norman outer bailey was revealed by excavation to be an Iron Age earthwork and it was suggested that the whole promontory was occupied in the Iron Age (Barker and Barton 1968). In the vicinity of these two Iron Age sites, the East Sussex SMR records several Iron Age coin finds, including imports from north-west France (SuSMR 417216; 417263; 417295; 417296; 417397). Hastings meets the criteria for a **'probable'** coastal node site used in this thesis due to the suitable physical location with beaching points clearly distinct amongst the rocky coast, and the proximity of two Iron Age 'hillfort' sites and contemporary finds from the area, including material imported from the continent.

(Webster 1995, 625).

Pevensey, Eastbourne and Beachy Head area (Site 7)

West of Hastings, the coast flattens out around Bexhill to Hooe Level which has been excessively drained. At Pevensey Bay there are extensive sand and shingle beaches suitable for landing vessels, with flat lands behind at Willingden[23] and Langney Levels. Pevensey Castle and the Roman fort of Anderitum now lie *c*.1.5 km from the coast. This area, east of Beachy Head and Eastbourne, was classified as a '**potential**' nodal site due to its advantageous topography, recorded finds, and evidence of Iron Age occupation.

Seaford Bay (Site 8)

This area covers the coast between Newhaven and Cuckmere Haven. The river Cuckmere meets the sea at Cuckmere Haven and provides extensive inland access along its valley that cut through extremely steep and hilly terrain. The river Cuckmere led inland north and east, and the Ouse north and west. Between them the diversity of inland routes provided access to a wide hinterland. Two kilometres west of the mouth of the Cuckmere is Seaford Head, a large, univallate hillfort (SuSMR 469840) part of which has eroded and been lost to cliff falls. There have been no estimates of how much of the site has been lost in that way. Seaford Head shelters the entrance to Cuckmere Haven and occupies a high cliff position overlooking the Channel approaches to the Haven. Seaford itself was on the outflow of the river Ouse that provided its harbour and port facilities in Medieval times[24] (Williamson 1959, 97-8). Newhaven is an established port town with a harbour that is fed by the river Ouse that, like the Cuckmere, provides excellent access inland. The use of the area in prehistory is suggested by the find of tools interpreted as a Bronze Age carpenter's set at Newhaven (Jessop 1970, 133), and finds of Iron Age and Roman coins on a contemporary settlement site near Newhaven Fort (SuSMR 406240) on Castle Hill. Castle Hill is an Iron Age hillfort, approximately five kilometres west of Seaford Head hillfort, which had been used during the Bronze Age and continued in use during the Roman period (SuSMR 406342).

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[23] A peat sample from the Willingden Level was radiocarbon dated to *c*.3400 BP (Woodcock 2003).

[24] The port at Seaford was active until the 15th century AD when the course of the River Ouse was diverted. The river found an alternative outflow two miles to the north-west that was later developed as the port of Newhaven (Williamson 1959, 97-8). The earlier course of the Ouse is debated; Williamson (*ibid*) suggested it ran to Seaford, whereas Calder (1986, 242) stated that during the Roman period it met the sea at approximately the same point as today, at Newhaven.

The combination of advantageous topography, with good inland riverine access, Seaford Head and Castle Hill hillforts, and a clear approach from the Channel suggested that the area of Seaford Bay was a **'probable'** node. However, it is not possible, on current evidence, to determine where the port facilities were sited or whether the nodal focus was at Castle Hill, within Cuckmere Haven, or elsewhere.

Shoreham (Site 9)

West from Newhaven the shore is very rocky as it runs to Brighton. The area of Shoreham was developed and remodelled around the harbour that lies behind the sand and stone beaches and a series of breakwaters, and is fed by the river Adur. The river now carries much silt from the downlands to the north, the results of intermittent cultivation of the downland soils over many centuries, so the harbour and canal are maintained by intensive dredging.

Approximately 8.5 km to the north-west of Shoreham Harbour is the site of a univallate hillfort at Cissbury, which sits on a chalk spur between the rivers Adur and Arun. It was constructed after *c*.250 BC (Jessop 1970, 147). Imported continental material, including Hallstatt pottery, has been recovered from Cissbury (Curwen and Ross Williamson 1931). Three kilometres north of the harbour is another univallate hillfort (or Iron Age hilltop settlement) at Thundersbarrow Hill (NMR 911108). Shoreham is classified as a **'potential'** node mainly due to the extensive river access inland and its sheltered beaches that offered landing points suitable for prehistoric vessels.

Lower Arun Valley (Site 10)

The river Arun flows to the sea at Littlehampton where, prior to modern canalisation and water management works, it terminated at a wide, tidal estuary. It meanders through a flat coastal plain for over 35 km from its confluence with the Rother at Pulborough. The river was referred to by Ptolemy as *Trisanto* (Geography II 3.3; 12-13) and is one of the seven *Trisantona* (or 'Trent') rivers studied by Bryony Coles (1994; see Chapter Three).

The Arun valley has yielded many finds dated to the later prehistoric period, and has been associated with activity at the nearby hillfort of Cissbury (see above). At least seven log boats (of unknown ages) have been recovered from the valley and immediate coastal shore (Jessop 1970, 170). The combination of the suitable topography of a sheltered estuary leading into the extended tidal waters of the river and further inland access, with Iron Age finds and the association with Cissbury hillfort as the high ground element, all combine to make the lower Arun valley match the criteria of a '**potential**' node.

Selsey and Pagham (Site 11)

Selsey lies in the tribal area of the Atrebates and is thought to have been one of three "urban centres" operated by that group (the others were Cellera and Venta) (Cunliffe 1975, 92). The area of Selsey was an island,[25] isolated from the mainland by an extension of Pagham Harbour that was formerly fed by The Lavant (Williamson 1959, 43; Pitts 1979, 69; Calder 1986, 251). A large amount of Iron Age coins has been recovered from Selsey, leading to speculation that a mint operated in the area (Jessop 1970, 144). Many of the coins have been suggested to exhibit Belgic influences and, together with finds of imported continental pottery (including vases from Greece), the evidence suggests that Selsey was involved in cross-Channel relationships and trade (White 1934, 41). The area has been classified in this study as a '**probable**' node as the island and harbour topography, archaeological features and artefacts, including evidence of manufacturing activity, closely match the traits and characteristics of the coastal node model.

5.3 Central coastal sector

The central sector comprises the modern counties of Hampshire and Dorset. Their combined coastline runs for *c.*600 km (*c.*375 miles) between Chichester Harbour in the east and the river Axe in the west. The central sector is characterised by a change from the cliffs and marshes of the south-east sector to wider tidal estuaries, natural harbours, sandy beaches, and the cliff line of the 'Jurassic Coast' World Heritage Site. The sector is defined by the Hampshire Basin to the east, the Dorset Chalklands to the north, and the English Channel to the south, and includes the areas producing Purbeck marble and Portland stone. The western boundary with the

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[25] The current land link between Selsey and the mainland was formed by silting and the deposition of alluvial material as well as marine transport of sediments that amassed on and against the developing physical link.

south-west sector is marked by the river Axe near the geological boundary with the chalk at Beer (and also near the current Dorset-Devon county border).

The coastline is cut by the major rivers of the sector, the Test, Itchen and Hamble (that feed into Southampton Water and run into the Solent (see Tomalin 2001a)), the Avon, Stour, Frome, and Axe. The Solent provided safe and sheltered anchorages for thousands of years since its formation from the ancient river of that name (*ibid*). There are large, natural harbours at Langstone, Christchurch and Poole with smaller coves and sheltered bays along the Dorset coast.

This sector contained many Bronze Age and Iron Age sites and routes, often associated with the suggested contemporary dominance of Wessex and the 'hillfort zone' of central southern England. Artefact distributions suggest routes along the coast between the central – south-west sectors (see Holbrook 2001), but there is currently little evidence of movement between this and the south-east sector. During the Iron Age this area was within the territorial lands of the neighbouring 'tribes', the Atrebates and the Durotriges.

5.3.1 Hampshire: topography and archaeology

The coast of Hampshire runs for *c.*55 km (*c.*34 miles) between its boundaries, but covers *c.*370 km (*c.*230 miles) along the HWM incorporating the many creeks and inlets (Hampshire County Council 1992). The coastal area comprises mixed sands and clays around the lobe-like harbours in the east that give way to sandy soils and heathlands from Southampton Water westwards. In the east of the county, the shoreline is cut by the natural harbours continuing the sequence from West Sussex. The three harbours, Portsmouth, Langstone and Chichester, are separated by the land masses of Portsea Island and Hayling Island. Portsmouth, or the general area of the Solent, was labelled Μέγας λιμήν (*Magnus Portus*) by Ptolemy (II.3.3) as it served the Roman fleet. The entire area has been the subject of extensive modern development, and Portsmouth is currently the second largest continental ferry port in the United Kingdom.

The Isle of Wight is separated from the mainland by the Solent. Its mainly cliff coastline is broken by small coves with sandy beaches which would have provided sheltered landing points. The north of the island is split by the large estuary of the river Medina which runs inland for *c.* seven kilometres. Investigation of the later prehistoric sites on the island is currently ongoing (Waller in prep.; G Momber, pers. comm.). The role of the island in pre-Roman maritime networks has been studied in detail by Trott and Tomalin (2003).

Southampton Water feeds into the Solent between Calshot and Fareham. It is fringed by salt marsh much of which is now occupied by modern intensive development areas at Fawley (oil refinery) and the dock and extended city area of Southampton. Other waterways include the Beaulieu River and Lymington River. All the rivers feed through the heathlands from the chalk downland that fringes the Hampshire Basin. The Isle of Wight lies across the Solent, opposite and sheltering the entrance to Southampton Water.

The eastern zone of Hampshire offered many landing and beaching locations suitable for prehistoric vessels, with sheltered anchorages amongst the harbour lobes for local shallow draft vessels. Despite the lack of cliffs, inland access away from the coast was difficult. The land is low lying but had little riverine access. Behind Portsmouth is the imposing 'barrier' of the Ports Down chalk ridge rising abruptly to over 130 mOD. The high lands above provide excellent views across the harbours and the English Channel, but inhibit access northwards. A Roman road ran behind from Wickham near the river Meon, past the back of Langstone and Chichester Harbours, towards Fishbourne in West Sussex.

Hayling Island (Site 12)

Excavation has revealed that a Roman temple on the island was constructed over an earlier Iron Age structure, dated to *c.*50 BC that was probably also a ritual site (King and Soffe 1999). This area of Hampshire was part of the lands of the Atrebates and the Iron Age site on Hayling Island was associated with that group and their Gaulish leader, Commius (*ibid*). The presence of an Iron Age ritual site, on an island that was overseen by a leader with strong continental links, suggested that the area would have received maritime traffic. Facilities to serve the boats and vessels were identified at a possible late Bronze Age timber wharf (Williams and Soffe 1987). That, and the topographic location of the site in sheltered waters with access to the Solent, in an area frequented for other activities, suggested it was suitable for maritime use. Near the eastern shore of the island is the univallate 'hillfort' of Tournerbury (on land less than 5.0 mOD) which is further evidence for Iron Age occupation (HaSMR 23329). Hayling Island is listed as a **'potential'** Iron Age site mainly due to the artefactual evidence and pre-Roman structures which indicates Iron Age use of the area. However, the current evidence is not sufficient to determine if the site operated as a 'coastal node'.

Isle of Wight (Site 13)

The Isle of Wight has an area of *c.* 83,000 ha and lies approximately mid-way along the English Channel, directly opposite Southampton Water, providing shelter and definition to the Solent. Its position means it has long been considered of strategic importance in historic maritime networks (Tomalin 2001b), but only recently has its role in earlier prehistoric networks been considered (Trott and Tomalin 2003).

The island provides examples of the physical traits identified in section 4.2. It is bisected north – south by the main river of the island, the Medina, which, together with the numerous creeks and inlets around the coast, provides sheltered anchorages and beaching points, as well as inland access. At Wootton Creek in the north-west of the island, a facility for mooring and perhaps beaching vessels in the Iron Age has been identified in the form of a timber and brushwood structure (Loader et al. 1997; Tomalin 1998).

The island also includes all the elements associated with the nodal complex (detailed in section 4.3 above). Over 50 enclosures are known in cropmark form (IoW SMR) as well as the Iron Age rectilinear enclosure on Castle Hill (Hampshire SAM 22063). The high ground element can be found at the promontory fort of 'Five Barrows' on Chillerton Down (Hampshire SAM 22029). Until recently, this was thought to be the only hillfort on the island, but recent investigations identified a defended HGE on the coast at Brading Haven (Bembridge) which has been dated to the Iron Age (Trott in prep.).

Iron Age finds have been recorded on the SMR from all over the island with concentrations on the southern shore, in the north-west, and the north-east (see also Figure 15). Strong maritime links with Dorset have been proposed based on finds on the island of Durotrigian pottery, shale and coins (Trott and Tomalin 2003, 171). Other imports suggest links with the Atrebates, Regni, Veneti and other continental groups (*ibid*).

A review of the Iron Age evidence led Trott and Tomalin to conclude that "the Isle of Wight may have performed a significant role in an intercommunicating chain of coastal trading communities" (2003, 163), and particular links with Hengistbury

Head and continental markets were postulated (*ibid*). The topography, position and archaeological evidence combine to suggest that the Isle of Wight was a component in the Iron Age maritime network. The focus of maritime activity at that time has yet to be identified but regardless of the specific location of the port and/or harbour site/s, there is sufficient evidence to recommend the Isle of Wight as a **'probable'** Iron Age coastal node.

Hamble Common (Site 14)

The Roman port of Clausentum was founded at the head of Southampton Water, probably to serve Winchester that was accessible from there along the river Itchen (Morey 1966, 24). Earlier activity in the Iron Age seems, from current evidence, to have focussed on the Hamble. The river Hamble runs from springs at Wintershill and Bishops Waltham for *c*.20 km to exit into the east of Southampton Water between Hamble-le-Rice and Warsash. Today, the Hamble Estuary is partially blocked by a sand spit and mud deposits that have accumulated over the past few centuries (Calder 1986, 268; Cundy and Croudace 1995).

Earthworks (cross banks and other features) of presumed Iron Age date[26] on Hamble Common demarcate the promontory that projects into the river at the point where it meets Southampton Water (HaSMR 25801). This is a commanding position to control or oversee access to the river and inland networks as well as traffic from the Solent along Southampton Water. The topographic situation closely matches the physical traits for a coastal node. However, the area has been classified as a **'potential'** node site due to the lack of evidence from archaeological investigation or recorded finds that might confirm the use of this area in the Iron Age.

Beaulieu River (Site 15)

Away from the area of modern development around Southampton, the coast follows the rural fringe of the New Forest, from which runs the Beaulieu River. This flows from Longdown in the north-west for *c*.23 km to exit at the now heavily silted and muddy coast at Exbury; it has a tidal reach of over 6.5 km inland. The outlet is marked by Gull Island which serves as an off-shore marker for the river entrance and adjacent site. The Channel approaches and lower river reaches are overlooked by the Iron Age promontory fort of Lower Exbury (HaSMR 21974). The site is defined by an earthwork bank and ditch to the east, and the Beaulieu River to the west (Sumner 1917, 119). Other than field observations of the location (*ibid*), the site has not been studied further.

This site closely matches the physical traits model, but the lack of further archaeological evidence from this area led to its classification in this study as a **'potential'** rather than 'probable' nodal site.

Lymington (Site 16)

West from Exbury, the coast changes to the mud deposits around the Lymington river, which runs *c.*15 km from the New Forest to the coast opposite Yarmouth on the Isle of Wight. Saltworkings from prehistoric and medieval periods are known within the adjacent marsh areas, as at Pennington Marshes. The area is well located for access by river into the New Forest (for access to its important pottery manufacture sites), and provides a sheltered point from which to cross the Solent to the Isle of Wight. A range of Bronze Age items have been recovered from around the town. These include a late Bronze Age bowl found on Lymington Marshes (HaSMR 42538), and a hoard of socketed axes found in 1779 (since lost) near the town (HaSMR 39881). A Roman necklace of wooden beads was recovered from the Lymington River during dredging in the nineteenth century (HaSMR 21882).

Iron Age activity in the area is suggested by two hillforts which lie only 0.5 km apart, in view of each other and the Lymington River. Ampress Hole is a mulivallate hillfort which encloses *c.*2.4 ha with double ditches and banks on the west side of the river (HaSMR 21841; Smith 1999). It has been partially destroyed by modern industrial development. To the west is another multivallate hillfort site at Buckland Rings (HaSMR 21843; SAM Hampshire 34; Hawkes 1936) with occupation evidence dated to *c.*50 BC – AD 43 (Hogg 1975, 146).

The riverine access and hillfort sites mean that the area of Lymington is classified as a **'potential'** coastal node.

[26] The earthworks and interior area is a Scheduled Ancient Monument (SAM 24323).

5.3.2 Dorset: topography and archaeology

The Dorset coast runs from Christchurch Bay to the river Axe near the county boundary with Devon. Along its length it varies from wide, sand beaches backed by heathland, to cliffs of chalk, shale, sand, Purbeck 'marble', and Portland stone, and includes the unique natural shingle bank of Chesil Beach. The rivers Avon, Stour, Frome, Wey and Brit all debouch on the Dorset coast.

Christchurch Harbour lies at the west end of Christchurch Bay and is recognisable both from land and from the sea by the prominent land mark of Hengistbury Head (see Chapter Six). The harbour is now heavily silted and not used for anything other than small leisure craft. It is fed by the rivers Avon and Stour that provide access to the heartland of Wessex. The topography and archaeology of this area is discussed more fully in Appendix One and in Chapter Six.

To the east, the conurbation of Bournemouth and Poole now fringes Poole Bay. Formerly the now heavily developed town area was open sandy heathland. Evidence of Bronze Age and Iron Age activity has been recorded, mainly in the form of burial sites and ceramic finds (Calkin 1964; 1968b). Chines cut down through the sand cliffs to the beaches.

Poole Harbour is the second largest natural harbour in the world. It is fed by the rivers Sherford, Frome, Piddle, and Corfe. It has two northern 'lobes' – Lytchett and Holes Bays, and four main islands, some of which were joined in antiquity: Brownsea, Furzey, Green, and Round and Long Islands, which are still joined at low water. The main channels in the harbour are now regularly dredged and the mud, silt and sand deposits are therefore highly mobile. The topography and archaeology of the Poole Harbour area are set out in Appendix One and in Chapter Seven.

South of Poole Harbour, the World Heritage Site of the 'Jurassic Coast' starts at Studland and continues to Exmouth in Devon. Studland, owned by the National Trust, is characterised by wide, sandy beaches, but these soon give way to the limestone cliffs of Purbeck. The cliffs rise sheer from the sea with very few beach areas at the base, even at low tide. Along the cliff line are distinguishable features including Old Harry, Ballard Point, Peveril Point, Durlstone Head, and St Aldhelm's Head. The southern extent of the cliffline is pocked by sea caves. To the west, from Chapman's Pool, coves have broken into the cliffs at Kimmeridge Bay, Worbarrow Bay, Mupe Bay, and Lulworth Cove providing sheltered anchorages. However, there are numerous offshore hazards – Mupe Rocks, Kimmeridge Ledges, Peveril Ledges, races at Peveril Point, and the rocks known as the Calf, the Cow, the Blind Cow and the Bull – that make the safest passage a few hundred metres off shore, rather than hugging the inshore, sheltered waters.

Steep cliffs continue past Ringstead Bay and offshore ledges sweep towards Weymouth. From Jordan Hill, the site of a Romano-Celtic temple, the cliffs abruptly give way to low-lying, flooded salt marsh at Lodmoor and the sand beach of Weymouth. Weymouth Harbour is fed by the River Wey and contains a large marsh and reed area. The bay and harbour are protected by the rock mass of Portland. The fringe of the Isle of Portland itself is sheer cliffs with perilous offshore rocks and a severe tidal race formed by the fierce currents running off the Bill. From Portland, the land link of Chesil Beach runs north-west to Abbotsbury, enclosing the Fleet as an 'inshore' lagoon behind it.

From Abbotsbury,[27] the sand and shingle beach backed by sand cliffs runs north-west to West Bay. The river Brit runs into the bay at a small developed harbour that gives immediate access to deep water. The sand cliffs continue past the rock and stone areas of East Ebb Cove and Cann Cove lying under the prominent land mark of high ground at Golden Cap. The land in this area of west Dorset is undulating, with numerous identifiable high points and gorge-like gaps as at Charmouth. Either side of Lyme Regis, rocky ledges extend out from the beach as the cliffs become more rugged, tumbling down to stone and rock beaches.

The variety of the Dorset coast was exploited in different ways by prehistoric people, to accommodate the needs of seafarers. Five possible nodal sites have been identified by their correlation with the physical traits listed in Chapter Four. Each site is considered below.

Hengistbury Head (Site 17)

The sand-based headland forms the southern edge of Christchurch Harbour (see above). The natural harbour is now heavily silted, but would have been suitable for all types of shallow drafted vessels in antiquity. The headland of Warren Hill shelters the harbour and is visible to vessels at sea as a high ground marker. The harbour is fed by the rivers Avon and Stour which both offer extensive access inland to Dorset and Wessex. As well as these physical advantages which suggest the location might have been suitable as a port site, it has been subjected to extensive archaeological investigation in the twentieth century that revealed sufficient evidence to classify the site as a **'definite'** match with the coastal node model. The site was one of three case studies examined in this thesis and is detailed in Chapter Six below.

Poole Harbour (Site 18)

The harbour at Poole lies *c.*15 km west of Christchurch Harbour and the site of Hengistbury Head. This is also a natural harbour site which offers the advantages of safe and sheltered moorings and beaching points. The harbour is fed by the rivers Corfe, Frome, Piddle (Trent) and Sherford which provide access routes west and north to Purbeck and the Dorset heaths. As well as providing a close match with the physical traits model, the location of Poole Harbour also includes the 'complex of elements' features of islands (there are three main islands in the harbour, Brownsea, Furzey and Green), local enclosures (known on Furzey Island and Ower Peninsula), and a high ground enclosure at Bulbury Hill, *c.* five kilometres to the north. The combination of all the traits and elements mean that Poole Harbour was classified as a **'probable'** coastal node site. It was the second detailed case study of this thesis, presented in Chapter Seven below.

Kimmeridge (Site 19)

Kimmmeridge Bay is sheltered from the main westerly winds by the sweep of the cliffs from Broad Bench promontory. The approach from the sea is hazardous at low tides due to the many parallel rock ledges that run obliquely from the shore. However, Kimmeridge was the source of shale that was quarried to provide the raw material for the manufacture of jewellery, furniture and other items, and for use as fuel (Calkin 1955). The shale was cut out of the cliffs, fashioned into rough blocks, and transported by boat *c.*25 km to Poole Harbour. At Poole it was offloaded for local use in manufacturing processes or transhipped for onward distribution (Calkin 1955; 1968a). The extraction of shale from Kimmeridge for the manufacture of

[27] Abbotsbury hillfort, 1.5 km from the coast, has wide-ranging views along the coast and inland.

armlets, cups and other items is known from at least as early as the Bronze Age (*ibid*); it continued to be quarried for use as fuel until as late as the mid-nineteenth century AD (Mansel-Pleydell 1894). Kimmeridge is included in the list of **'potential'** nodal sites as it exported the raw material along the coast and could have been part of the extended coasting network of the southern-central and south-west sectors in the Iron Age.

Bindon Hill and Lulworth Cove (Site 20)

The striking near-circular indentation of Lulworth Cove was formed from the marine erosion of a weak point in the chalk cliffs (Davies 1956, 86). It is a natural harbour with a remarkably sheltered anchorage, and sufficient water at all tides to accommodate the larger planked sailing vessels of the Iron Age. As well as having the capacity to provide a nodal focus on shipping routes, the cove also functioned as a safe haven – it is the only safe mooring on a long stretch of Dorset coast, and offered safe access, beaching and anchorages for all types of contemporary vessel.

The northern cliff of the cove rises steeply to the crest of Bindon Hill, 168 m above the beach below. The hill top is isolated by a bank and ditch defining a mainly univallate hillfort. It has one surviving entrance on the north side that is still approached by an ancient track, known locally as the 'Roman Road'. Wheeler excavated here in 1950 and found the width of entrance and track to be wider than usual - "perhaps designed for the easy admission of cattle" (Wheeler 1953, 7). There is also an additional cross-dyke earthwork cutting off *c.*80 ha (*c.*200 acres) of the west end of the ridge and harbour. This was not finished and the method of layout and construction is still visible. This has been suggested by Wheeler (1953) to have been built using the gang system (as at Ladle Hill - see Piggott 1931). The combination of the safe natural harbour of the Cove and the large enclosed hilltop immediately above recommend this as an Iron Age coastal site, and it was classified in this study as a **'probable'** node.

Portland (Site 21)

The rock mass of Portland is visible from points all the way from Start Point in Devon to St Catherine's Point on the Isle of Wight. It occupies a significant position on the routes along the Channel coast and is located at approximately the mid-point of voyages between the main south-west and south-central sector sites of Seaton and

Sidmouth, and Poole Harbour and Hengistbury Head. The landmass is easily identifiable from the sea, a low foreshore rising to dramatic cliffs. Portland is not a true island as it is connected to the mainland by the ridged bank of Chesil Beach, but it exhibits all the characteristics of an insular location.

An Iron Age port at Portland could have served the Durotrigian heartland, as the Roman port at Radipole continued to do. Maiden Castle, a large and important Iron Age 'hillfort' lies *c.* 10 km north of the port area. Access from Maiden Castle would have been by overland route.

Archaeological evidence confirms that Portland was occupied during the Iron Age. Taylor (2001) suggested that a major hillfort settlement was located on The Verne and was associated with activity in the sheltered harbour. Finds included material from Hengistbury Head, south-western ceramic, and coins, ingots, and pottery from the continent. The artefacts recovered suggest that Portland was directly involved in regional, national and international maritime contacts during the final century BC. Taylor suggested that the contact was not necessarily commercial, but that the contemporary 'dislocation' of peoples on mainland Europe led to material arriving at Portland carried by mercenaries, refugees, etc. (*ibid*). Whether for trade or refuge, the Iron Age occupation of Portland and its role in the maritime network suggest that it is a **'probable'** coastal node.

5.4 South-west sector

The south-west coastal sector covers the southern shores of Devon and Cornwall from the river Axe in the east to Land's End in the west. The physical characteristics of the sector are distinct from the central coastal area. Jurassic formations in the east give way to Permian/Triassic rocks in much of Devon, to Old Red Sandstone around Start Point and to shales and slates along the Cornish coast. In the south-west, the coast becomes increasingly rocky to the west and the wide estuaries and valleys of the Axe and Exe are replaced by steep-sided valleys and inlets such as the Dart and Helford. The distance to continental Europe is further than for the central and eastern sectors, and voyages were probably made more regularly along the coast than direct cross-Channel passages. However, the tin routes, whose development in the Bronze Age has been suggested (Harding 2000;

Cunliffe 2001b) linked the western area of this sector with routes to the continent and Mediterranean markets (see Chapter Three above).

5.4.1 Devon: topography and archaeology

The eastern boundary of Devon, in the area of Seaton, is characterised by the flood plain of the river Axe and its bordering marshes. The mouth of the Axe is now very narrow and contorted by a shingle bank that is an extension of Seaton Beach. From the marshes the land rises quickly to the chalk cliffs at Beer. The coast in this area is very rocky and the sheer cliffs continue to Sidmouth. In many places the bases of the cliffs are mounded with stone and shingle piles as at Branscombe Ebb under Berry Cliff. Berry Cliff Camp, on the edge of the cliff, is being eroded and subject to loss to cliff falls, and much of High Peak has been lost to the sea. Coombes open out at the cliffs.

West from Sidmouth the coast is characterised by stony beaches with occasional areas of rock ledge. The river Otter exits at Otterton Ledge, a protruding rock mass. The stone beach character continues to Straight Point. West of the Point, the nature of the coast changes to sandy beaches and the aspect at the mouth of the river Exe is much more open. The Exe Estuary is bounded by extensive mud flats up to Topsham. This sits between the river Exe to the west and river Clyst to the east. The Exe continues north to Exeter alongside the Exeter Canal.

The area between the Exe and Teign has a dense concentration of enclosures that have been identified from the air (see Devon HER; Griffith and Quinnell 1999, Map 7.4), particularly in the parishes of Kenton and Teignmouth. The river Teign runs from Dartmoor to exit at Teignmouth. South of this, Babbacombe Bay is characterised by a stony coast with frequent small sandy bays. The headland of Torquay overlooks the rocky islets of Thatcher Rock and the Ore Stone as well as submerged rock hazards. Tor Bay is sheltered by the protruding land mass of Brixham. Prominent land marks, visible from some distance off shore, are located at Berry Head, Durl Head, and Sharkham Point. Offshore rocks are scattered around the fringes of St Mary's Bay.

From the sea, the rocky coast is broken at Dartmouth as the river Dart flows out from its origin on Dartmoor. Unlike most of the south coast river estuaries, the Dart is not bounded by wide expanses of mud, silt, or sand, but retains a more distinct, steeper edge. Kingswear juts into the river, providing shelter and calmer waters for the major deep water anchorage located upstream at Dartmouth.

Between Dartmouth and Start Point is the distinctive line of Slapton Sands isolating the lagoon of Slapton Ley. Start Point is a most distinctive navigation mark that is intervisible with Portland on clear days. This area has been subject to extensive marine erosion, which has resulted in the loss of large tracts of land, including Hallsands village which was overcome by the sea during storms in 1917 (Barber 2001). Westward from the Point the coast is very rocky with frequent rock coves and numerous offshore hazards.

Kingsbridge Estuary provides calm tidal waters running inland to Kingsbridge. The mouth of the estuary is partially obscured by The Bar, a sand hazard just offshore from Salcombe. To the east of the estuary mouth, at Moor Sands, Bronze Age material was recovered from the sea-bed and has been interpreted as the remains of the cargo from a wreck in the vicinity (Muckelroy 1980; 1981; Parham in prep.).

From the southern promontory of Bolt Head the coast continues north-west and is increasingly rocky and unwelcome to shipping until it reaches Bigbury Bay. This is marked to the south by the promontory fort of Bolt Tail, adjacent to which is the sheltered beach of Hope Cove. Bigbury Bay contains several small, sandy beaches, including Bantham and Challaborough, that would make suitable beaching and launching points for prehistoric vessels, or provide safe havens for ships caught in poor weather off shore. The river Avon flows past Bantham to the sea immediately south of Burgh Island. Between Challaborough and the mouth of the river Erme the coast is again rocky and unsuitable for vessels to land. Tin ingots, possibly of prehistoric date, were retrieved from the rocks that lie on the sea approach to the Erme Estuary. The sites of Mothecombe and Oldaport lie on the edges of the estuary.

West of Bigbury Bay, the coast is very rocky with long ledge 'fingers' running to Wembury Bay. Offshore in the bay is the islet of the Great Mewstone. The rock coast continues north to Plymouth, broken only by the mouth of the river Yealm. Plymouth Sound is the confluence of the rivers Plym, Tavy, Lynher and Tamar that marks the county boundary with Cornwall. Drake's (St Nicholas') Island lies in the Sound, and the Iron Age site of Mount Batten is on the eastern shore of the Sound at Cattewater.

The coastal topography of Devon provided many of the characteristics identified in the coastal node model and 11 possible sites were identified on the county's southern coast.

Seaton/Axmouth (Site 22)

Located on the lower flood plain of the river Axe, this area conforms very well with the characteristics of the coastal node model. The beach is sheltered and gentley shelved, so was suitable for landing and launching vessels. The mouth of the Axe is fringed by marsh areas that were suggested as the location of a Roman harbour (Holbrook 2001). Holbrook (*ibid*) considered that the harbour was part of the coasting network during the Roman period, if not earlier, and may have connected with the nearby Fosse Way overland route (F Griffith, pers. comm.; Maxfield 1986; Weddell et al. 1993). There is also a high concentration of enclosures and hillforts along the Axe – four overlook the river within five kilometres of the coast. The combination of the physical characteristics and known Iron Age sites and finds suggest this area as a **'probable'** coastal node.

Sidmouth (Site 23)

The river Sid flows more than 12 km from Gittisham to the sea at Sidmouth. As at Seaton, the mouth of the river was constricted by the accumulation of sand, stones and silt that changed the characteristics of the landscape in the vicinity of the river. Roman bronzes were recovered from the mouth of the Sid (Taylor 1944) and the Devon HER states that "a number of finds of various periods have been found around the mouth of the Sid" (DeHER NY18NW/14), including Bronze Age, Roman and Prehistoric (undated). On the west of the Sid valley, *c.* four kilometres from the coast, is Sidbury Castle. This was constructed around a knoll on top of a spur overlooking the river and encloses *c.* four hectares (Fox 1996, 51). The area of Sidmouth was classified as a **'potential'** node due to the natural features of the sheltered beach and riverine access, and the proximity of Sidbury Castle.

Otterton and the Otter Estuary (Site 24)

The river Otter meets the sea at Otterton Point. Following investigation of a Roman site at the Point it was concluded that the area was eroding at a rate of *c.*0.1 m pa (Brown and Holbrook 1989, 29). If the rate was constant, it suggests that the Iron

Age coast was at least 200 m further south than at present. However, the estuary has a long tidal inflow and the town of Otterton, two miles upstream, served sea-going vessels in the Middle Ages (Oswald 1984; Brown and Holbrook 1989). The Roman site at Otterton Point was dated to the late second century AD and included pottery imports from Dorset (Poole Harbour Black Burnished Ware) (see Allen and Fulford 1996; Holbrook 2001), the New Forest and the continent. An earlier, Iron Age, use of the area was not discounted.

The general area of the Otterton Estuary is suggested as a **'potential'** prehistoric coastal node due to the favourable riverine access and subsequent use as a coasting node on routes between the south-west and central sectors.

Topsham and the Exe Estuary (Site 25)

The river Exe rises in Somerset and flows to the sea at Exmouth. The wide tidal estuary was suitable for use as a sheltered safe haven for all known types of Iron Age vessel. Numerous prehistoric and Roman finds have been recorded from the area, including two Bronze Age palstaves found at Dawlish (Rowlands 1976a, 280; 301; Pearce 1983, 440), one other from Powderham Sand (Fox 1958, 221; Pearce 1983, 543), and various Roman coins from the late Iron Age – Roman periods (see Devon HER SX98SE/194). However, most of the finds were concentrated in the area of Topsham that is suggested as the focus of prehistoric maritime activity in the estuary.

Topsham occupies a spur of land that projects into the Exe at the confluence with the river Clyst. Many enclosures have been identified by aerial reconnaissance to the west of the estuary and at Topsham (Griffith and Quinnell 1999, map 7.4). Finds from the area include five provincial Roman silver coins dating to the Augustan period (31 BC – AD 14) (P Bonnington, pers. comm. recorded on Devon HER SX98NE/167), coins of Vespasian and Constantin I (Fox 1956, 219), and a copper double axe, probably of Aegean origin (Fox 1948, 10-11; Briggs 1975, 49; Pearce 1983, 456). Although Roman Exeter, four miles up the river, was a major Roman town, Topsham provided the port and trading functions (Williamson 1959, 49), probably continuing the earlier, Iron Age, use of the area. Holbrook (2001) suggested the area was part of the south-west coasting network. Topsham is therefore classified as a **'probable'** site, pending further investigation. Its location on the Exe Estuary, finds of imported material, and the local topography, including the high ground of Mount Howe, match the physical traits list.

Teignmouth (Site 26)

The river Teign rises on Dartmoor and flows to a wide, sheltered estuary at Teignmouth. In common with other Dartmoor rivers (Dart, Avon, Erme, Tavy, and Tamar), the route along the Teign offered good access between the coast, through the fertile valleys of south Devon, to the moorland and the mineral and other resources known to have been exploited in prehistory. There has been little archaeological investigation of Teignmouth, but the Devon County Aerial Reconnaissance Programme has identified many cropmark enclosures in the vicinity (Devon HER; see also Griffith 1983). The enclosures remain undated but indicate the complexity of landscape utilisation along the coast. Two kilometres south of the river, on a high ground slope, is the multivallate site at Milber Down. Excavation revealed Iron Age occupation and finds of south-western pottery and bronze zoomorphic figures with continental affinities (Fox et al. 1949). The benefits offered to shipping by the sheltered estuary, with unimpeded access from the sea, combined with the riverine link inland (overlooked by the Milber Down hillfort), were factors that suggested the site be considered as a '**potential**' coastal node.

Tor Bay (Site 27)

The red cliffs that run west from Teignmouth around Babbacombe Bay merge with the shallow beaches of Tor Bay. The southern tip of the bay is marked by the small, univallate hillfort of Berry Head. Tor Bay was classified as a '**potential**' nodal site due to the presence of the hillfort and the sheltered aspect of the bay that would have been suitable for use by Iron Age ships and vessels following the south coast routes.

Dartmouth (Site 28)

The deep water estuary of the river Dart offered many advantages for Iron Age shipping, including sheltered anchorages. There has been little change to the form of the Dart Valley since the Iron Age due to its hard rock geology (F Griffith, pers. comm.). The narrowness of the valley, in contrast to the wide estuaries elsewhere on the South Devon coast, made it difficult to navigate for vessels under sail. However, as outlined in Chapter Three, it is likely that Iron Age shipping vessels also had the capacity to be rowed, which would make them easier to manoeuvre in such conditions. It has been suggested that the Dartmouth hinterland was poor, sustained only by the tin that was transported through the area from Dartmoor via Totnes (Parker 2001, 28). However, it is not certain that tin was the only material supplied to and transported through Dartmouth. It is likely that prehistoric trade comprised intangible goods and materials that have not survived into the archaeological record.

The Dartmouth area has been classified as a '**potential**' node due to the level of shelter and deep water access it provided. In addition, the multivallate hillfort of Noss Camp (Fox 1952; 1996, 45; Lewis et al. 1987), on the east side of the valley, is a further element that matches the nodal model.

Kingsbridge Estuary (Site 29)

The long, wide estuary offers extensive inland access via sheltered waters from the southernmost point of South Devon. One of the main indicators of prehistoric use of the area is the Moor Sands wreck site. A cargo of scrap bronzes from the continent was discovered offshore from Salcombe. It was interpreted as the remains of a cargo from a Bronze Age wreck that foundered in the vicinity, on the approach to the estuary (Muckelroy 1980; 1981). The continental origin of the cargo components suggested that the Kingsbridge area was part of the international maritime network along and across the Channel in the Bronze Age. As outlined in Chapter Three, the maritime routes and nodal points established and utilised by the Bronze Age metals trade continued to be followed in the Iron Age due to their viability and perhaps tradition of use. Salcombe, at the mouth of the estuary, has been described as the "great port that never was" (Calder 1986, 300). Whereas that may have been true of its historic use, in prehistory it is possible that the area was an active port site. The area of the Kingsbridge Estuary exhibits all the components of the physical traits and suite of elements models, although it has not received much archaeological attention. It has therefore been classified as a '**potential**' node site.

Bigbury Bay (Site 30)

Bigbury Bay lies on the west coast of the South Hams and is defined by the promontory fort of Bolt Tail to the south, and the cliffs of Newton and Noss to the north. As well as the southern promontory fort, other high ground elements are known in the vicinity at Yarrowbury and Holbury – both classified in the Devon HER as Iron Age hillforts. The Bay is fed by two rivers, the Erme and the Avon, which flow from Dartmoor through sheltered tidal estuaries. The mouth of the Avon is marked by the distinctive outcrop, the 'Long Stone', and the offshore island, Burgh Island. The island is connected to the mainland at Bigbury on Sea by a low tide causeway. The bay contains several small, sandy coves which would offer suitable beaching points for shipping, as well as sheltered anchorages in the two estuaries. Bigbury Bay matches all the elements and characteristics of the coastal node models but has not been subject to much previous archaeological investigation. It is therefore classified as a **'potential'** coastal node. It is the location of the third case study examined in this thesis, the results of which are detailed in Chapter Eight below.

Wembury Bay (Site 31)

The physical characteristics of Wembury Bay, a sheltered beach at the outflow of the river Yealm and the offshore feature of the Mew Stone suggested that it may have been suitable for use by prehistoric shipping. Recent coastal erosion exposed previously buried pits which have been excavated and dated to AD 420 – 600 (Reed 2003). Although that date range is later than the period of investigation, it was noted that the beach area bore remarkable similarities to the sites of Mothecombe and Bantham in neighbouring Bigbury Bay and the retrieval of lithics from Wembury indicated "background prehistoric activity in the vicinity" (*ibid*, 3). The area has been classified as a **'potential'** node site on the basis of its suitability as a sheltered beaching point, at the mouth of the river Yealm, and with suggestions of prehistoric activity.

Mount Batten (Site 32)

The area of Mount Batten has been investigated by Barry Cunliffe (1988a) and more recently by AC Archaeology (Gardiner 2000). The extent and impact of the investigations were second only to those at Hengistbury Head for a south coast Iron Age site. Cunliffe concluded that Iron Age occupation focussed on a promontory which was connected to the mainland by a low tide causeway.[28] The promontory, located near the entrance to the Sound, was in a suitable position to monitor coastal and riverine traffic in and around the Sound and was a visually prominent point when observed from vessels on the water. The proximity to the riverine routes of the Tavy and Tamar, as well as the Lynher and Plym, placed Mount Batten at the hub of an extensive riverine distribution network at the point where it interlinked with the coast and maritime networks. The archaeological evidence recovered confirmed the inter-regional and international scopes of the site's interactions (see Appendix One Site 32 for detail). Cunliffe (1988a) considered that, during the late Iron Age, Mount Batten held a secondary or subsidiary role in long distance trade, with the principal point of entry in southern Britain at Hengistbury Head. The artefacts recovered certainly suggest that the promontory site was occupied, or used, by a 'high status' late Iron Age community (*ibid*). The location of the site, at a position convenient for shipping and coastal and inland distribution, and finds of regional and continental Iron Age imports determined that Mount Batten was classified as a '**definite**' match to the coastal node model.

5.4.2 Cornwall: topography and archaeology

The southern coast of Cornwall considered in the study runs from the west of Plymouth Sound to Land's End, a distance of *c*.540 km (*c*.335 miles). The coastline continues the rock character for its entire length, with the exception of Whitsand Bay to Downderry where there is an abrupt change to a long, sand beach although it is still backed by stony ground and cliffs.

The rock and cliff line is broken by the mouths of rivers and estuaries which flow into the Channel. At Looe, both the West Looe and East Looe rivers run to the sea opposite St George's (Looe) Island which lies *c*.500 m offshore and is surrounded by other rocks that break the water surface. From here, the shore is inaccessible from the sea except at specific points in small coves or breaks in the cliffs as at Polperro, Lantic Bay, and Fowey where the large Fowey Estuary provides far-reaching access inland. To the west, other access points and land marks are

[28] The causeway ceased to flood on high tides following the construction of the Plymouth Sound breakwater in 1812.

found scattered along the coast, for example at Gribben Head, Par Sands, Carlyn Bay, St Austell and the Austell River mouth, Pentewan and neighbouring beaches, and at Mevagissey. At Gwineas there is an offshore rock group that is a hazard to coastal shipping.

After the land mark of Dodman Point, the coast turns to Veryan Bay with landing opportunities at Porthluney Cove. Offshore is Gull Rock, and Nare Head marks the turn to Gerrans Bay and Carne, Pendower and Porthcurnick beaches. The coast is then particularly rocky until Falmouth where the large estuary is formed by Carrick Roads with St Mawes Harbour and the confluence of the river Fal and Truro River. The Fal Estuary is an important route which provides extensive access inland. South of Falmouth is the prominent mark of Pendennis Point that, with Maenporth and Rosemullion Head, is an area of particularly coastal rockiness. The interior of the Lizard peninsula is split by the east-west route of the Helford River with Gilland Creek and Harbour providing shelter near its mouth. Porthlevan Sands has a small harbour which is fed by Carminowe Creek and The Loe.

The rocky coast continues to the shelter of Mounts Bay where St Michael's Mount is connected to the mainland by a low-tide causeway. On the west coast of the bay is the hamlet of Mousehole which has a small harbour. Immediately outside of the harbour entrance is St Clement's Isle. From the southern end of Mount's Bay the coast is generally exposed to the west as it continues to Land's End. The shore is characterised by a line of rugged rock cliffs which are broken by small coves.

Despite the rugged character of the coastline, the inlets, coves and beaches of the southern Cornish coast provided many of the characteristics sought in the coastal node model. Eight possible node sites were identified.

The Tamar Estuary (Site 33)

The Tamar is a substantial watercourse, running from near the north Cornish coast beyond Bude to join with the Tavy and flow into Plymouth Sound. The large tidal estuary is fed by many water courses running from Bodmin Moor and Dartmoor, while the Tamar itself flows from near the north coast of Cornwall. Both 'Tamar' and 'Tavy' are ancient British river-names (Ekwall 1960, 459; 461). The Sound is a natural deep water harbour (with channels in excess of 40m deep) that is marked at its entrance by the promontory site of Rame Head. This area offers safe anchorages and beaching points with extensive riverine access leading to Dartmoor, and has been suggested as a '**probable**' nodal site on the basis of those traits and the proximity of Iron Age sites such as Mount Batten (Site 32), the promontory fort of Rame Head at the entrance to Plymouth Sound and finds of continental imports found at Torpoint.

Looe Bay (Site 34)

Looe Bay was classified as a '**potential**' site as the topographic features matched the traits of the nodal model. Offshore, St George's Island (also known as Looe Island) serves as an identifiable land mark when observed from the sea. The East and West Looe rivers converge at Trenant Wood to flow one kilometre into the bay at a small, sandy beach that is distinctive in the line of the rocky coast and is suitable for beaching vessels. The East Looe leads from the fringe of Bodmin Moor. Hillforts have been identified along the route of the West Looe river, mainly small enclosures, such as the multivallate site of Bury Camp (Lanreath parish) that is located at the head of a tributary of the West Looe river. The long-range riverine routes overlooked by hillforts, local enclosures and the off shore island are elements that match the physical traits model and suggest Looe Bay as a '**potential**' coastal node.

Fowey (Site 35)

Fowey is located at the mouth of the Fowey estuary into which the rivers Fowey, Lerryn and Pont Pill flow. Inland access via these rivers stretches more than 10 km, with a possible short portage link between the Fowey and Camel that connects the English Channel with the Irish Sea whose use is well attested in historic times (Radford 1951; Calder 1986, 325-6). This estuary is narrow and fringed with high ground enclosures and hillforts. Castle Dore, a multivallate hillfort, is three kilometres NNE of Fowey. The prominent location of the sheltered estuary, at an accessible point on the south-west coasting routes, and the presence of a high ground enclosure at Castle Dore, suggest Fowey as a '**probable**' coastal node.

Mevagissey Bay (Site 36)

The distinctive promontory fort of Black Head separates the bays of Mevagissey and St Austell. To the west of Black Head is The Van cliff castle. However, it is not just the presence of the two coastal 'forts' that determined the '**potential**' classification of this area. There are suitable landing points in both bays from which rivers provide inland access. St Austell river meets the sea at Sconhoe and Pentewan beaches; finds of Iron Age-A and -B material have been recorded from along the river's route. A prehistoric bridge across the St Austell river was recorded in the Pentewan valley (CoSMR 24071) suggesting ancient use of the crossing point and inland route to/from the coast. To the south is Portmellon Cove, fed by the small river that runs through the steep valley that is now fringed by a marshy plain. That would have offered a sheltered beaching point in the Iron Age.

Falmouth (Site 37)

The area around Falmouth offers *c.*10 square miles of sheltered anchorage (Edmonds et al. 1975, 3) along the wide estuary of Carrick Roads and the rivers that flow into it. The sheltered estuary, fringed by high ground enclosures and hillforts, matches the physical traits identified in Chapter Four. It is in a good location for receiving waterborne traffic coasting the south-west peninsula as well as vessels using the extensive inland routes to Truro and beyond. The entrance to the estuary is overlooked by Pendennis Castle and St Anthony Head (Iron Age promontory forts) which also provide clear observation of the Channel approaches. The estuary is fringed by beaching points and safe anchorages, for example at Mylor, Restronguet, St Just Pool, and the ideal safe haven location of St Mawes. It is suggested as a '**probable**' node due to the natural advantages of sheltered anchorages and beaching points within the estuary, and inland access routes along the rivers which feed into it, and the presence of the promontory forts commanding the entrance to the estuary.

Helford Estuary (Site 38)

The Helford Estuary cuts through the Lizard on a west – east course as it runs to Falmouth Bay. It opens into the English Channel, facing east towards Bigbury Bay. The mouth of the estuary is marked to the south by the small promontory fort of Little Dennis and Gillan Harbour, and to the north by Rosemullion Head cliff castle. These prominently located sites acted as imposing 'gateways' to the Helford River, observing all approaches and traffic into and out of the estuary. Further away from the coast, larger univallate and multivallate Iron Age hillforts were constructed on both the north and south slopes and high ground overlooking the estuary, for example, Tremayne Camp, Caer Dallack (also known as Caer Vallack), and Gweek that lies at the head of the estuary. The creeks and rivers that run north-south into the estuary also had large enclosures and camps/hillforts constructed on their routes, for example, Mawgan Creek and Polwheveral Creek.

The igneous geology of the Lizard produces clays which are distinguishable by their gabbroic inclusions. The distribution of Iron Age pottery made with gabbroic fabrics extends throughout southern Britain, including to Hengistbury Head and Maiden Castle in Dorset (H Quinnell, pers. comm.) and as far afield as Northamptonshire (see site entry in Appendix One). The proximity of the Helford river, with its advantages for water transport, would probably have been important in accessing the clay sources and exporting pottery from the area.

The Helford Estuary has been classified as a **'probable'** node due to the proliferation of sheltered river and coast sites and the association with pottery manufacture and distribution.

Mullion (Site 39)

Mullion lies on the western shore of the Lizard and, unlike other sites considered in this study, is exposed to the strength of the westerly winds. However, the physical traits otherwise conform to the nodal model and suggest that the area could have operated as a coastal site, particularly offering safe haven to vessels rounding the Lizard. Two coves, Poldhu and Polurrian, have sandy beaches that were suitable landing places. They are each backed by a stream-filled valley that provides a route up through the cliffs to the high ground above. A cliff castle and a round lie above Polurrian Cove. To the north is the univallate hillfort of The Towans. Despite facing directly into the westerlies, the coves offer some shelter with the sweep of the cliffs around them and from the off shore Mullion Island that also served as an identifiable land mark. On the basis of the physical characteristics of the area and the local high ground sites, Mullion was suggested as a **'potential'** node site.

Mounts Bay and St Michael's Mount (Site 40)

Some authorities suggest St Michael's Mount as the Bronze Age mineral trading site of *Ictis* (Herring 1993a). Harrad (2002) suggested it was a distribution point for Iron Age pottery produced at the Lizard, and the prominence of island would have made it a distinguishable landmark from the sea. The area is classified as a **'probable'** node as the northern and western fringes of the bay are characterised by sweeping beaches and sheltered harbours that would make suitable landing and mooring sites for prehistoric vessels and the location of St Michael's Mount, a causewayed island, further matches the physical traits.

5.5 Extended analysis of the site locations

5.5.1 Coastal nodes and high ground enclosures

From observations of the known and potential coastal sites it was recognized that a high ground element (HGE) was often located in the vicinity. Therefore the south coast maps and SMRs were checked for all occurrences of these sites and 113 were identified in the south coast counties (see Table 7). Of that set, 55 (48.25%) were within five kilometres of, and possibly associated with, a coastal node site. Of the 40 nodal sites listed in Appendix One, 29 (72.5%) had a HGE in the vicinity. This suggests that HGEs could have been a significant element in the complex.

The HGEs were observed located on the direct route from the coast – either along a river or overland and most overlooked the coast. 33 (29%) of the HGE sites are actually on the coast and some, such as Dover Castle, Hastings Castle, and Bindon Hill were possibly the actual coastal node. Others, such as Berry Head (Devon), Bolt Tail, and Black Head are sited at the extreme points of bays containing coastal nodes. Another group was located at a point approximately five kilometres from the main node (e.g. St Catherine's Hill, Chalbury, and Musbury Castle). The remainder are located either along the coast or inland, but all within the five kilometre radius of the coastal node. By virtue of the proximity to the coast and direct access to it, these sites are likely to have been associated with the coast, but were they associated with activity within the nodal complex? Finds at some of the HGEs suggest there was a relationship: for example, the anchor found at Bulbury, and items recovered from the route between the HGE and coastal node, for example the Iron Age finds on the route between Hengistbury Head and St Catherine's Hill (see Chapter Six and Appendix One). There are problems ascribing dates to many of the HGEs, most of which have not been investigated archaeologically, but the finds of Iron Age material at or in the vicinity of some of them suggests that those at least may have been contemporary with the Iron Age coastal sites.

5.5.2 Types of coastal node in the south coast sectors

As outlined above, the character of the south coast varies in topography and geography, and the types of coastal site also differ. In the south-east sector, the rate of RSL change is more rapid than in the south-west, and the area has been much altered by reclamation and the artificial diversion of water courses (for example at Romney Marsh and Pett Level), as well as by natural erosion of the soft chalk coast. This makes consideration of former shorelines and coastal character more difficult to define and so more difficult to identify possible prehistoric coastal site locations. No 'definite' sites have been identified in this sector (see Table 8). Although Dover (Site 1) would be a good candidate for a 'definite' site, further work is required, for example, at the known Iron Age HGE at Dover Castle. No headland or promontory sites were identified in the south-east sector. This is a function of the nature of the topography: all the sites listed are estuarine or at beaches or coves. The lack of offshore islands and associated HGEs also meant that very few 'complexes' could be discerned. It is likely that sites in the south-east were 'simple' coasting ones as the main focus for maritime interaction and routes was elsewhere, at the Thames Estuary. East – west interactions were probably monitored inland between the 'gateway' hillforts rather than along the coast.

The southern central sector is perhaps the most naturally variable. The predominant geology of the east and south is comprised of sandstone which erodes easily and rapidly, as at Hengistbury Head and Poole Harbour. Both of those sites have also been affected by the accretion of silt from the rivers which feed the natural harbours. Westwards from Purbeck, the geology changes to the much harder Purbeck and Portland stones which withstand erosion. A combination of headland, riverine and beach sites was identified in this sector, as well as those at the natural harbours at Christchurch and Poole.

In contrast with the south-east sector of the Channel coast, the harder geology of the south-west has changed less through time which has permitted a more definite identification of possible site locations and hence the recognition of the majority of the 'probable' sites occurs in this sector (see Table 8).

The south-west also contains more identified 'complexes' than other sectors, due to the proliferation of islands and islets along the rocky coast, and the identification of coastal enclosures, particularly in Devon. Many of the coastal elements in the complexes of this sector are located at a promontory or headland, for example, Mount Batten, Helford, Falmouth, Bigbury Bay and Tor Bay. Again, this is due to the characteristics of the south-west coastline which inherently provides more of the elements considered in Chapter Four.

It has been demonstrated that sites along the coast differ in response to the natural characteristics of the land which they occupy. However, one of the most common location factors in all three sectors is the proximity to a river giving good access inland: it is important to note that it was not just the large, 'international' scale sites which were located at river mouths: the majority of sites identified in this study, regardless of size or function, were located on or very near a river or estuary with a tidal range and depth of water sufficient for log boats and other vessels to travel some distance inland (for example, rivers Arun, Avon, Tamar and Helford).

With very few exceptions, more work remains to be done at the identified sites in order more fully to understand their function in the coastal network. It is recognised in this study that it was impractical too consider them all, so three sites were identified, reflecting the range of sites at different levels of probability ('definite', 'probable' and 'potential'). Hengistbury Head is a known and major coastal node which conforms with the checklist and is supported by excavation and finds of Iron Age material, including imports. Poole Harbour is less well understood – imports have been recovered from the area and it matches many elements on the traits list. Bigbury Bay has not been previously considered with respect to Iron Age activity, but the Bay conforms to elements of the physical traits list and the 'complex of elements'. These three sites were investigated as case studies and are reported in the next three chapters.

Chapter 6

Case Study 1: Hengistbury Head, Dorset

6.1 Introduction

Hengistbury Head in Dorset is the most extensively, and intensively, investigated of the few Iron Age sites presently known on the south coast (Figure 16). It has featured prominently in the literature as a 'port of trade' since excavations by Bushe-Fox in 1911-12, sponsored by the Society of Antiquaries of London (Bushe-Fox 1915). This chapter reviews the evidence from, and interpretations of, the site that have been used in the past to underpin many assumptions of Iron Age ports.

Hengistbury Head was selected as a case study because it is one of the few recognised Iron Age ports in Britain. It has been classified in this study as a 'definite' site as the interpretation of the location as an Iron Age port is supported by the results of previous excavations and survey. As such it was an excellent example with which to test the list of physical characteristics of a 'coastal node' and explore those traits in more detail. The set of characteristics was examined together with a consideration of the evidence for sea-level change and the implications of those changes for the use of the site. The later first millennium BC function of the site as a port was established in previous studies on two grounds:

1. the location of the site on the edge of Christchurch Harbour, mid-way along the English Channel, in a position that is highly relevant to known trade routes along and across the Channel;
2. finds of imported pottery, metalwork and other materials recovered during excavation.

Here, a review of the artefactual evidence seeks to determine the extent of Hengistbury's continental connections. The study then expands to the wider scale of the site as a coastal node and a component in the complex of elements by looking at the other sites in the hinterland and considering how Hengistbury could have interacted with them.

The works of Bushe-Fox (1915), St George Gray (summarised in Cunliffe 1987), and Cunliffe (1987) have done much to establish the type of activity and chronology of use of the site, but there remain questions relating to the physical extent of occupation at Hengistbury and the position, size and role of a postulated tidal inlet in Barnfield (see Cunliffe 1987). Cunliffe had suggested a large scale of operation for the site (Cunliffe 1984c; 1987), but since then Andrew Fitzpatrick (2001) has proposed that the Iron Age activity areas were not in fact particularly extensive. In the course of this research a geophysical survey was conducted over a wide area in an attempt to determine the size of the occupation area and detect indications of the tidal inlet on which it was said to sit (6.4 below). The case study reinterprets both the physical setting and functionality of Hengistbury Head and questions whether it should still be regarded as a major Iron Age port of trade on the south coast.

6.2 Hengistbury Head as a coastal node

Two major episodes of archaeological investigation at Hengistbury Head in the twentieth century have concluded that the site operated as an international port of trade in the Iron Age (Bushe-Fox 1915; Cunliffe 1987; see Appendix One (Site 17) for background of archaeological investigation). The basic elements which have been advanced in support of this are reviewed below in relation to the physical and material characteristics of a 'coastal node' as identified in Chapter Four above. Consideration is then given to the position of Hengistbury within the wider complex of elements in section 6.3 below.

6.2.1 Position and topography

Hengistbury Head is located mid-way along the English Channel at an advantageous and convenient position for engagement with maritime traffic (Figure 16). It is the most westerly point to or from which Iron Age vessels could cross the Channel within the hours of daylight and with little loss of land sight (Davis 1997, 133). Additionally, the headland of Warren Hill serves as an excellent navigation mark for vessels at sea, identifying the location of the port and its access. This also offered a useful observation point: from the top of Warren Hill all marine, riverine and land approaches are visible and could have been monitored.

One of the primary natural advantages of the site is Christchurch Harbour immediately to the north. The calm waters, sheltered from the prevailing wind by Warren Hill, provide a safe haven. The harbour bed is not rocky and until recently offered good anchorages with plenty of space for manoeuvring vessels of all sizes. The entrance to the harbour ('The Run') is now narrow and fiercely tidal with shifting sand bars immediately outside. However, it is clear of any underwater obstruction and offers easy access/exit with the tide.

The harbour is fed by two major rivers, the Avon and the Stour (Figure 11). These provide excellent links inland from the headland site. The Avon runs roughly north – south reaching through Wiltshire and Dorset from the heartland of Wessex. The Stour flows west – east for 59 miles (96 km) through the Dorset heathlands and the chalk downlands beyond. It draws from a catchment that covers more than 1300 sq km. Both rivers offer useful routes through the Hengistbury hinterland to communities far inland. Such excellent access has been identified in this study as a key feature in the coastal node model (see Chapter Four). In addition, cargoes from Hengistbury could be transhipped to Poole Harbour, less than 15 km to the west, and thereby gain access via the river Frome to west Dorset and beyond (Calder 1986, 278).

6.2.2 Maritime evidence, sea-level change and their implications

Today, Christchurch Harbour covers *c.* nine square kilometres; it is shallow[29] and edged by extensive alluvial mudflats and salt marshes. Current MHWS is 0.89 mOD (1.8 mCD). Sea-level during the Iron Age would have been lower than today, although no sea-level regression studies have been published for this harbour. Samples were removed during the 1979 – 84 excavations for the purpose of determining datable sea-levels, but these have yet to be processed (B Cunliffe, pers. comm.). However, an indicator of relative sea-level was provided by features recorded in the excavation. Excavations at Rushy Piece (see Figure 18) revealed an area of compacted gravel that contained sherds of Dressel IB amphora. This sloped gently up from the north before becoming abruptly steeper towards the southern

[29] The channel currently reaches depths of -3.0 mCD (-3.91 mOD) at discrete pools, but has an average depth of just -0.3 mCD (-1.21 mOD) (source: Admiralty chart SC2172, 2002).

(landward) end. It was interpreted as an artificial 'hard' on which boats could safely be beached and refloated on the tide without sinking into the underlying alluvium (Cunliffe 1987, 8). The northern limit of the gravelled area was *c.*-1.1 mOD; its southern extent was at 0.5 mOD. If this feature was a hard, the contemporary water level is probably indicated by the point where the slope changes from shallow to steep. That point is at *c.*-0.5 mOD and is the level suggested by Cunliffe for average late Iron Age sea-level (*ibid*). If that is the case, it suggests that sea-level in that area has risen approximately 1.4 m over the past 2000 years.

An earlier occupation level was revealed beneath the alluvium (consolidated by the overlying gravel hard). A waterlogged ditch contained pottery from the end of the middle Iron Age, late Iron Age imports from northern France, and amphora fragments dated to *c.*100 BC (Cunliffe 1987, 8; Illustration 15). The surface around the ditch (level *c.*-0.4 mOD) contained a slight hollow filled with dung in which were preserved animal hoof prints. It is interesting to speculate whether these were the marks of the pack or draught animals used to transport loads to and from the vessels at the harbour's edge.

Although invisible today, it has been suggested that during the mid – late Iron Age there was a tidal inlet running south-west from the harbour through to what is now known as Barnfield. Two gravel ridges with a sand-based inlet between them were recorded through excavation during the 1970s and 1980s (Cunliffe 1987, 12-14). The presence of a tidal inlet at that point (Figure 18) would significantly affect the orientation of the settlement and harbour activities, and so this was investigated further as part of the fieldwork for this research (see 6.4 below).

Earlier excavations revealed further indications of local sea-level changes through later prehistory. The area of the postulated Barnfield tidal inlet (see above) contained occupation debris dated to the late Bronze Age – early Iron Age, suggesting a lower sea-level at that time. The level rose during the mid – late Iron Age when the inlet was thought to have flooded, but the area was reoccupied at the end of the Iron Age so sea levels must have again fallen (Cunliffe 1987, 12). The lower gravel terraces that fringe the southern shore of the harbour were the areas of densest activity (Cunliffe 1987, 12; 67).

The lower sea-level in the later Iron Age meant that the harbour was narrower than that seen today. However, this would have been partially balanced by the fact that less alluvium had then been deposited by the rivers, and the salt marshes that today fringe the harbour were not so well developed (Lavender in Pepin 1985; West 2002). The lack of alluvium meant that the channels through the harbour were clearer and deeper than today, quite capable of accommodating the shallow draught cross-Channel and coasting vessels in use at that time (see Chapter Four).

One of the earliest recorded archaeological discoveries in Christchurch Harbour serves to support its early use as a port. According to an account in *The Antiquary* for 1910 (reproduced in Appendix 2), the burnt remains of a ship were found in the mud of Christchurch Harbour in 1909. Initially it was thought to be of Viking date. However, following excavation, it was pronounced as Roman on the basis of the interpretation of Dr Read (Roman ceramic specialist at the British Museum) who examined some of the ceramic recovered with the timbers in the British Museum in 1909/10. Unfortunately no further record of the ship or the excavation has been found and no record of Read's observations, or any of the material itself, is known at the British Museum despite checks and searches (J D Hill, pers. comm.). The reference to the vessel is intriguing: if indeed it was a Roman ship it is the only direct evidence of such in southern Britain outside of London. Roman use of Christchurch Harbour is believed to be rather limited compared with its earlier use in the Iron Age (Cunliffe 1987, 71). The Roman date of the pottery has not been confirmed, so it is just possible that the vessel could perhaps have been visiting Christchurch Harbour prior to the Roman conquest with a cargo of continental or Mediterranean goods. However, the existence and antiquity of the vessel are far from certain and the lack of any further record of the timbers, the excavation, or the finds unfortunately means that it will remain an uncertain item of interest.

6.2.3 Imports and material culture

In addition to its position, Hengistbury Head has been considered a major port in the Iron Age because of the immense range and large number of imported objects and evidence of the manufacture of goods for export recorded during excavation in the twentieth century. The artefacts recovered from excavations have been reported in detail elsewhere (Bushe-Fox 1915; Mays 1984; Peacock 1984; Cunliffe 1987; Carver 2001). A review of the evidence and those studies is presented below to consider how the port function was supported and the extent of Hengistbury's maritime links.

It has been suggested that the continental material recovered from Hengistbury was either brought to the site as objects of trade (Collis 1996; Cunliffe 1987), or as the personal items of (seasonal) occupants (Fitzpatrick 2001). The latter theory was employed to suggest that Hengistbury was an enclave of immigrants from north-west France, who possibly came to the area in advance of the increasing Romanisation of their homeland (*ibid*).

The ceramic evidence

The early and middle Iron Age ceramic material found at Hengistbury Head (dated to approximately eighth – second centuries BC) was hand-made from local clays. The forms were mainly functional storage and cooking wares that were either plain or simply decorated. In the late Iron Age, from *c.*100 BC, there was a distinct change in the character of the assemblage. This was the start of the 'Contact Period' (Cunliffe 1987) and imported, wheel-turned wares appeared, including sandy, micaceous fabrics that have been sourced to both south-west Britain and north-west France.

In total, 17,968 potsherds were recovered from excavation at Hengistbury Head during the twentieth century (Cunliffe 1987, 206), of which 551 were Gaulish imports (*ibid*, Table 39). That accounts for just 3% of the assemblage, although a later assessment calculated the average proportion of imported ceramic (excluding amphorae) to be 32.7% of the late Iron Age assemblage (Cunliffe and de Jersey 1997, 50). Unfortunately, no explanation has been given for the substantial difference between the two figures and neither study (Cunliffe 1987; Cunliffe and de Jersey 1997) presents the complete data set from which the figures are derived. Therefore, in this assessment, the more cautious figure of 3% is used as, although not complete, there is more detail in the 1987 report to substantiate that estimation.

The Gaulish material at Hengistbury matched forms from Aquitaine, Limousin, and central Gaul (Santrot forms), and from Gallo-Belgia and north Gaul (Camulodunum forms) (Cunliffe 1987, microfiche 8: A12). The movement of goods across the Channel from those regions would thus have been predominantly via the central routes presented in Chapter Three.

Unfortunately, the total number of inter-regional imports is not recorded. Finds at Hengistbury of non-local British pottery include South Western Decorated wares ('Glastonbury Ware', fabric B4), those from the Wessex chalklands (fabrics C1 and

F), and Wiltshire (fabrics H20 and I) (Cunliffe 1987). The presence of these wares clearly suggests the use of the riverine routes along the Avon and Stour as well as coastal routes from Devon and Cornwall. These wares were produced through the mid and late Iron Age (*c*.400 BC – first century BC), but the material recovered from Hengistbury Head has been dated to the late Iron Age (with one sherd from a Roman context) (*ibid*, 317). The quantity and variety of South Western Decorated sherds found at Hengistbury Head is exceptional for a site located outside that region and attests to the significance of the site in the inter-regional trade network, particularly linking the south-west and central regions, at that time (*ibid*).

As well as the South Western Decorated wares, other coarse, micaceous wares were recovered from the site. These have been identified as similar in form and fabric to wares from Cornwall rather than north-west France, although further analysis is required to confirm the provenance of the material (Cunliffe 1987, 317). Regardless of the exact source, the route of these micaceous wares from Cornwall or France would match those already proposed for other forms through the western 'corridor' of the English Channel.

The recovery of 1367 sherds of various amphora forms suggested that Hengistbury's continental contacts extended beyond the Channel region to the Mediterranean (Williams *in* Cunliffe 1987, 271-3). However, it was argued that amphorae and their contents were not transported direct to Britain from their source, but via north-west France (Peacock 1984; Peacock and Williams 1986; Williams 1988). On this model, the amphorae were transported from source along the extensive riverine networks through the Carcassonne Gap and along the Rhône and Loire. Coastal networks in France were used to move the amphorae to the area of the Channel crossing, probably from Brittany (see Galliou 1982; 1984; Carver 2001). As Williams commented (*in* Cunliffe 1987, 271), the "amphorae from Hengistbury Head are one of the most important pieces of evidence for the existence of widespread trade with the Continent present in the pre-Roman late Iron Age". Of the many amphora forms, Dressel IA was considered the most useful to illustrate trade connections (*ibid*) and was interpreted as suggesting a "close relationship between Brittany and the hinterland of Hengistbury in the first half of the first century BC" (Cunliffe and Brown *in* Cunliffe 1987, 310). Furthermore, that evidence was also used to suggest that the two areas were linked by a single economic system (*ibid*). Although this might be stretching an interpretation based on one specific class of evidence, the overall impression from the ceramic assemblage did suggest direct maritime and riverine links between Hengistbury and north-west France and south-west Britain.

The interpretation of Hengistbury Head as a major centre of international trade, and even the ascription of 'port of trade' functions, has relied on the evidence of the imports. However, as few other coastal sites have been investigated, there is a lack of comparisons that can be sought. One site that has provided evidence of imports on a similar scale is Poole Harbour (which is discussed further in Chapter Seven).

The metalwork evidence

Various items of bronze and iron have been recovered from the headland both through excavation and as stray finds. All of the brooches (bronze and iron) recovered from Iron Age contexts were continental types, mainly La Tène III styles of the first century BC.[30] The presence of these items provides strong evidence of the links with north-west France at this time.

Other bronze items also suggested coastal and continental routes and contact. A late Iron Age bridle bit (Cunliffe 1987, 151-2) has its closest parallel on Hayling Island to the east and a bronze toggle is similar to those found at Glastonbury, Meare, and Hod Hill (Cunliffe 1987, 153). Those sites were all linked to Hengistbury via the south-west riverine network (see Chapter Three).

A zoomorphic bronze riveted 'attachment' was found by Bushe-Fox in Barnfield (1915, 61; plate XXIX object 6, reproduced here in Figure 17). It was associated with early Iron Age pottery and Bushe-Fox suggested it represented a duck. A possible comparison is the bronze duck found with a bronze bird and stag at Milber Down Camp, Devon (Fox et al. 1949, 40-4; plate xiii; see Figure 17) although they have been dated to the late Iron Age. Cunliffe (1987, 152-3) considered the Hengistbury piece represented an ox-head, similar to the late Iron Age example from Hornaing, northern France. If the illustrations of the Hengistbury Head and Milber Down items are compared with similar zoomorphic forms such as those depicted on the late Iron Age Rose Ash bowl[31] (Fox 1961a; Megaw 1963; Cunliffe 1972), it can be seen that the Hengistbury item does indeed resemble those

[30] With the exception of brooch 4 (Cunliffe 1987, 146), a La Tène II type.

of a late Iron Age date, and was possibly the product of the south-western metal work tradition which itself evolved from an imitation of continental styles, especially of pottery decoration (*ibid*).

Other metal finds have invited further continental comparisons: a decorated bronze stud was of a type familiar in first century BC continental La Tène III contexts (Cunliffe 1987, 153), as were three bronze fasteners (*ibid*). A unique find in Britain was the Y-shaped silver and gold handle recovered by Bushe-Fox (Bushe-Fox 1915, 61-2; plate XXIX object 11; Cunliffe 1987, 157) that, again, was of a type well-known in continental La Tène III contexts.

With the exception of the bridle bit, the British metalwork parallels were all from the south-west region. All the examples of late Iron Age metalwork indicate links at that time with the south-west via the coast and rivers, as well as the cross-Channel traffic that brought brooches and other decorative objects into southern Britain. Taking all these finds, it may be suggested that Hengistbury, south-west Britain and north-west France can be viewed as an 'English Channel province', exhibiting direct communication links and sharing common modes of style and material expression.

Other finds

Objects made of glass, shale, and stone provide further evidence of regional and international contacts as none of the materials recovered occurred naturally at Hengistbury Head. Glass beads, armlet pieces, and fragments of purple glass were compared with continental Iron Age assemblages such as at Manching (Henderson *in* Cunliffe 1987, 161). It was likely that the purple glass was imported to Hengistbury from the continent as a raw material for the manufacture of glass objects. Manufacturing activity is one of the functions that was identified as complementing the port activities at other coastal sites identified in this study (for example, Selsey (Site 11) and Poole Harbour (Site 18)).

Sixty-eight separate quern stones were identified from 112 fragments, some of which (number not specified in the report) were Iron Age forms and/or from Iron Age contexts (Laws *in* Cunliffe 1987, 167-71). The local stone at Hengistbury Head

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[31] Interestingly, the escutcheon on the Rose Ash bowl is suggested to represent the head of an ox (Fox 1961a).

is soft and easily eroded so not at all suitable for quern material. The quern stones were therefore imported, with the majority being sourced petrologically over 50 km from Hengistbury (*ibid*). Two specific sources of the stone were identified in Gloucestershire. Although coastal transport around the south-west peninsula was possible, it is probable that the shorter, more direct riverine routes were used to transport the stone. The routes are discussed by Coles (1994) and Sherratt (1996) (see Chapter Three). These are the same routes suggested by the finds of South Western Decorated pottery (see above). A cross-Channel source in Normandy was also suggested for the Puddingstone querns (Laws *in* Cunliffe 1987, 167).

A total of 4.3 kg of shale (123 items) was recovered from the various excavations at Hengistbury in the twentieth century (Cunliffe 1987, 176). That included waste flakes, unworked blocks, cores and fragments of finished or part-worked armlets. The material was interpreted as evidence for both hand working and lathe turning of shale at Hengistbury Head in the Iron Age and early Roman periods (*ibid*, 176-7). However, there was no record of the flint or other tools required to work the shale being found. In the light of the assemblages from Poole Harbour (Calkin 1955; and see Chapter Seven), this casts doubt on the interpretation of shale working as an activity at Hengistbury. There are other reasons that could explain why the shale cores, waste flakes and fragments were present at the site. The process of working shale produced much waste of the type found at Hengistbury. Historical evidence shows that waste shale was removed from the manufacturing sites as ballast in ships and/or for use as fuel (Mansel-Pleydell 1894); it is possible that it was shipped for similar purposes in earlier times. It is therefore recovered from many sites that were not engaged in shale working but were linked, often by water routes and for trade or exchange, with sites where manufacturing of shale products occurred. Shale working can be confirmed only by the presence of other evidence for the process, such as the flint tools. As these were not identified at Hengistbury it cannot be confirmed that the site was involved in shale working. The closest source of shale to Hengistbury Head is the main shale beds at Kimmeridge on the Dorset coast and the nearest confirmed shale working site is *c.*14 km along the coast at Poole Harbour. Here shale working was undertaken on a large scale on Green Island and elsewhere (see Chapter Seven). It is possible that the shale was transported as part of other cargoes exchanged between the two harbours.

The analysis of the material evidence clearly indicates that Hengistbury Head was part of communication and trade networks that extended along the rivers and coast as well as across the Channel. The topography of the site has been shown to match the physical traits identified in the coastal node model, and excavations have revealed artificial waterside facilities for boats. The combined evidence supports Mays' conclusion that Hengistbury was the maritime emporium referred to by Strabo (Mays 1981; see Chapter Three) although the percentage of imports in the overall assemblage is surprisingly low for a major international port.

6.3 Hengistbury Head in the wider complex of elements

Based on the topographic study and evidence from excavation at Hengistbury, it has been demonstrated above that the site matches the criteria explored in Chapter Four for a coastal node in the Iron Age as follows:

- it was located at a position on the coast where tides and currents are suitable for along- and across-Channel voyages
- the harbour was safely and easily accessible from the known along- and across-Channel routes
- two rivers meet at the harbour and provide far-ranging inland access
- the headland location could serve as a sea-mark, and offered shelter (to vessels on the water and facilities on land)
- the harbour provided a safe haven with good anchoring/mooring locations and space for manoeuvring vessels
- a gravel hard was identified at Rushy Piece that served as a formal landing point
- the area of the headland demarcated by Double Dykes provided enough areal capacity for storing goods and accommodating people.

We should now consider how the site operated within the wider landscape complex. Cunliffe (1984b, Figure 1) presented a model of maritime interactions with Hengistbury as the primary contact point, but its relationship with its hinterland has not been fully investigated. This imbalance can be addressed by considering how

Hengistbury compared with the wider complex of elements identified in section 4.3 above.

The primary component of the complex was the harbour-side site at Hengistbury Head. Christchurch Harbour is fed by two major rivers, the Avon and the Stour, that give direct access to the chalklands of Wessex and Dorset. There is no immediate off-shore element at Hengistbury. Christchurch Harbour does contain a small, horse-shoe shaped islet, Blackberry Point, but this is little more than a sand bar that has accreted from alluvial material deposited from the rivers Avon and Stour during relatively modern times; it has yielded no archaeological material. However, the promontory, demarcated very obviously by the Double Dykes earthwork, could have been perceived as, and indeed functioned as, an island. The key role of the island element in the nodal complex model was to provide somewhere set apart, with apparent security and possibly also neutrality. The isolated headland provided both of those requirements. It was surrounded by water on three sides, and the landward approach was cut off by the Double Dykes running across the neck of the promontory. The position of Double Dykes appears to have been deliberately chosen at the narrowest point between the sea and the harbour at which to define and isolate the promontory. The earthworks are now approximately 3.0 m high, 10.0 – 14.0 m wide, and the ditch *c.* 2.0 – 3.5 m deep (Cunliffe 1987, 67). The surviving length of the earthworks is just under 300 m (Cunliffe (*ibid*, 68) states it is 290 m long), compared with an original length of approximately 520 m (*ibid*). The loss of over 200 m is due to erosion by sea and wind of the southern cliff.

The large area of Barnfield, immediately within the earthworks, has yielded little evidence of activity from excavation or survey (see 6.4 below). The (unnamed) field immediately to the west of Double Dykes similarly revealed little activity when recently investigated by geophysical survey (GSB Prospection 2001). If the earthworks were intended solely to bound the functional area they would have been constructed much further to the east and closer to or within Longfield. However, Bushe-Fox did recover Iron Age pottery, corroded iron, melted and distorted bronze, and burnt human bone from a burnt layer immediately within the Double Dykes line from which he inferred a cremation site (Site 1: Bushe-Fox 1915, 20; see Figure 18). This has since been lost to erosion so it is not possible to test or further to examine the area. However, Bushe-Fox suggested that the cremation occurred after the earthworks were constructed (*ibid*, 11) and so could not have influenced the position of Double Dykes. Two other "occupation areas" within Barnfield were identified from pottery spreads (Sites 2 and 3: Bushe-Fox 1915, 20). Additionally, a possible iron refining site was revealed at Site 4 (*ibid*). All of these activity areas postdate the earthworks and were isolated spots within the expanse of Barnfield. The earthworks of Double Dykes served both to set the headland site apart from the landscape and to provide defence and security for the site and port area.

Hengistbury Head exhibits the third component – the high ground element – at two scales. First, the harbour and settlement area were immediately at the foot of, and sheltered by, Warren Hill. The hill is the only high ground in the local area and served as a prominent land mark for vessels on the water. It is composed of sandstone that contains iron 'doggers'. There has been much erosion, particularly from the western and southern edges of the hill, which can be attributed to both natural causes and the effects of mining for the ironstone. The removal of the ironstone was particularly vigorous in the nineteenth century; it greatly affected the stability of the landmass and increased the natural rate of erosion of the sand-based cliffs. Between 1907-1912, Bushe-Fox recorded that 35 feet (*c.*10.7 m) was lost from the south end of Double Dykes (1915, 10). That equates to approximately 2.1 m pa. Cunliffe estimated erosion to be *c.*1.4 m pa (1987, 4). Regardless of the exact rate of erosion, it had a marked effect on the surviving form of the landscape and the interface with the beach, and led to the loss of archaeological material.

At the more distant scale, five kilometres north-west of Hengistbury Head is St Catherine's Hill (Figure 94). This was the site of considerable Bronze Age activity as evidenced by numerous round barrows, and was also the site of a small, oval, Iron Age enclosure that was classified as a hillfort (Dorset SMR ref 8000/70). However, little work or attention has been directed to St Catherine's Hill. It was not mentioned by either Bushe-Fox or Cunliffe despite its proximity to Hengistbury Head and its location on the direct riverine route to/from Christchurch Harbour along both the rivers Stour and Avon. It rises from the wide plain between the two rivers as the first high ground encountered on the route from the harbour. It overlooks both rivers and has commanding views to Hengistbury Head, Christchurch Harbour, and the sea beyond. Land and waterborne traffic travelling to/from Hengistbury could be observed from all directions. Conversely, looking from the settlement area and harbour at Hengistbury Head, as well as from Warren

Hill, St Catherine's Hill is markedly obvious as the only high ground in the surrounding flat lands.

St Catherine's Hill fulfils the physical requirements of the 'high ground component' of the model. Unfortunately there has been little investigation and few finds to date the site accurately or to confirm or refute the potential relationship with Hengistbury Head. However, in general terms of Iron Age use at least, the nature of the relationship between the two sites can be examined. The proximity of St Catherine's Hill to the rivers, particularly the Avon, would make it an ideal location to function as a control point, monitoring traffic to and from the coastal site. In addition, storage and/or redistributive functions could have made use of the natural defensive and observation advantages of the hill on the main riverine route.

Stray finds of local and imported pottery have been recovered from along the river route between Hengistbury Head and St Catherine's Hill. Also, a Greek coin of Ptolemy VIII (145-116 BC) was found at Tuckton in 1912 (Milne 1948). This suggested the route was used in antiquity. The place-name 'St Catherine' has been identified at sites along the central and south-west Channel coast of Britain which "are generally on the tops of hills" (Crawford 1913, 648). Crawford associated the name with a Gaulish deity who comprised the attributes of Zeus and Poseidon which were related to the sea (*ibid*).[32] Although not currently supported by further evidence, this is an interesting suggestion that St Catherine's Hill, which overlooks the riverine route to the harbour at Hengistbury, was directly associated with the sea-port in antiquity.

6.4 Fieldwork

The interpretation of the role of Hengistbury Head as an Iron Age port was based on the results of previous excavations and finds of imported material. It has been demonstrated above that the site also conformed to the 'checklist' of physical characteristics for a coastal node and to the wider complex of elements. Whilst its function as an Iron Age port is not challenged, there is still much to learn about the

[32] Further detail and discussion of this place-name evidence is presented in Chapter Eight in relation to the site name 'Ludgate'.

site to inform not only the study of that site, but the development of the model of coastal nodes as well.

Cunliffe's excavations (1979-84) concentrated in an area of 30 m x 90 m close to the current harbour foreshore (Figure 18) with an additional trench 65 m long, varying from 3.0 – 6.0 m wide, extended from the initial excavation area (Cunliffe 1987, 75). Contemporary work at Dragonfly Pond (Chadburn *in* Cunliffe 1987, 128-135; Lewis 2002) and Rushy Piece (Cunliffe 1987, 6-12; 135-6) indicated that Iron Age activity including cultivation and waterfront works occurred in those areas to the east of the main site. The area to the west, Barnfield, was not investigated as thoroughly. Limited excavation was conducted by H St George Gray during 1919-24 (summarised in Cunliffe 1987), and Bushe-Fox sampled *c.*42 acres (*c.*17 ha) with a random pattern of trenches of various shapes and sizes including trenches cut through Barnfield (Bushe-Fox 1915) (see Figure 18). From these were recovered Iron Age and Bronze Age pottery, worked flints, and a burnt layer just within the Double Dykes earthwork, close to the cliff edge that was interpreted as a cremation site (*ibid*, 20). However, it is accepted that Bushe-Fox's work was highly selective and tended to focus on the recorded burial monuments, so leaving the possibility of further settlement evidence in the Barnfield area.

Interpretations of Hengistbury Head have concentrated on its function as a major international port. However, the extent of the site was not determined in Cunliffe's work so a programme of survey was instigated to assess the potential of Iron Age activity areas in Barnfield. Cunliffe (1978, Figure 11) suggested the Iron Age "urban" settlement extended through Longfield and over most of Barnfield, covering an area of approximately 11 ha, but there was little known evidence to support that proposition.[33]

Geophysical survey methods were therefore employed to investigate potential archaeological deposits in Barnfield and Longfield. At the time, it was believed that no geophysical survey had been conducted anywhere on the promontory east of Double Dykes. It has since been established that a small-scale geophysical survey had in fact been undertaken as part of the fieldwork conducted in the early 1980s, but the results have never been processed nor the data published. However in

[33] Cunliffe alternatively suggested an area of 75,000 square metres (7.5 ha) within Longfield for the late Iron Age/Romano British settlement (1987, 75).

discussion, Professor Cunliffe has stated that the results of that survey were negative (B Cunliffe, pers. comm.).

The following sections report on the new and original material derived from the fieldwork carried out in 2002-3. The format adheres to that recommended by English Heritage (1995) who granted Scheduled Monument Consent for the survey to be undertaken. Primary results and instrument data are presented in Appendix Three.

6.4.1 Survey aim

The geophysical survey was proposed to investigate the area of Barnfield, running into Longfield, at Hengistbury Head (Figure 20). The aim of the survey was to establish, as far as possible, the physical extent of the activity area associated with the Iron Age port. The main question was one of scale – to determine if the large activity area proposed by Cunliffe (1978, Figure 11; see Figure 19) was the true extent of the Iron Age settlement and port.

The survey grid was positioned to establish the extents of the settlement and, in addition, possibly to provide evidence to resolve Cunliffe's suggestion that the Barnfield Inlet was tidal at the time of the settlement (Cunliffe 1987, 12). This was a significant point, as a tidal inlet on the edge of the settlement would affect the orientation of activity, determine the type of vessel that could have been accommodated at the site, and would fundamentally change its aspect and use.

The main focus of the survey was in Barnfield, the area of flat, present day open space immediately inside the Double Dykes earthworks. Bushe-Fox completely excavated a round barrow in this field and dug a series of trenches (see above). However, no conclusions were reached about the overall potential occupation pattern (Bushe-Fox 1915).

It was anticipated that this geophysical survey would identify potential occupation features, particularly hearths and ditches, and their spatial relationship with features known from the previous excavations. This would help to assess the overall extent of settlement within the defended area of the promontory. The survey was designed to provide a better understanding of the scale of the trading site and associated occupation.

6.4.2 Survey summary (Methodology and detailed results are given in Appendix Three)

Figures 21 and 22 respectively show the unprocessed and processed plots from the large area (approximately 5.5 ha) covered by 139 primary grid squares surveyed with an FM36 gradiometer. Three distinct zones were apparent. The western zone (Barnfield) had a number of individual ferrous contaminated areas against a general very low background level (-50 nT). In the east (Longfield) the response characteristics were different, appearing much noisier; this corresponded with areas of previous archaeological investigation (see Cunliffe 1987) and the anomalies may be anthropogenic or geological. Between these two zones the central area was quite distinct; here the topography was distinguished by a dense occurrence of large anthills. In addition, there is likely to be ground contamination in this area from material that has slipped down the Batters (Figure 18). This is an artificial bulging mound on the north-west slope of Warren Hill created from tipped material that had been extracted when quarrying for ironstone in the nineteenth century.

The areas of Barnfield and Longfield had not previously been the subject of any form of geophysical survey other than the small (unprocessed) work conducted in the early 1980s. The data collected for this investigation suggest that archaeological features do exist beyond the areas previously investigated by excavation, but not in the areas nor on the scale suggested by Cunliffe (1978, Figure 11). Usefully, the location of features and trenches excavated by Bushe-Fox (1915) were discerned (anomalies e^1, g, and k). This confirmed that anomalies were detected by the equipment and permitted a more precise plot of Bushe-Fox's work to be generated and related to the Ordnance Survey National Grid (Figures 18 and 20).

An anomaly with a ferrous signature ran the length of the western edge of the survey area and the southern edge of Barnfield. This was identified as the line of a wire perimeter fence. A similar linear anomaly running from grid I1 approximately north-east to grid K3 was attributed to an underground service pipe. The distinct linear anomaly running through Q7 and Q6 was in response to the metalled track.

The survey results did not produce evidence of many potentially archaeological features within the western zone, although several distinct sub-circular and linear anomalies were recorded. These were not detected as a recognizable pattern, and it is not possible to state whether any relationship exists between them. However, Bronze Age activity is known from the north of Barnfield where Bushe-Fox (1915, 14-17) excavated a round barrow that is still extant, immediately north of grids H10 and I10. It is possible that the sub-circular anomalies detected in the immediate vicinity of the barrow represent features associated with it (anomalies **b**, **c** and **d**).

The most distinct anomaly detected in Barnfield is a linear feature (anomaly **f**). This is approximately 80 m in length, and corresponds exactly with a line recorded in plan by Bushe-Fox (1915, Plate 33). Unfortunately there is no key to his plan to suggest what the line represented. It was probably a boundary, possibly a fence line. The detected response characteristics suggest a linear feature consisting of magnetically enhanced material, typical of a filled-in ditch. However, the response could represent pieces of metal and rust from a former fence.[34] Bushe-Fox's excavation included a group of small trenches close to the line of the 'boundary', but no features or finds were recorded.

The parallel lines of anomaly **e** are of a form normally interpreted as plough marks. The only recorded ploughing at Hengistbury was in the "low-lying area" (assumed to be Barnfield) in 1912-14 to prepare the ground for a golf course which was not constructed (see Calkin 1966, 8; Barton 1992, 7). Whatever the date or purpose of ploughing in Barnfield, it would have loosened the soil and denuded areas of the field, subsequently destroying or damaging any underlying prehistoric evidence.

In the central zone, the group of anomalies (**g**) in grid K5, near the eastern edge of Barnfield, corresponds to another area of excavation by Bushe-Fox. This was within "occupation area 2" of which he recorded "A fair amount of pottery of class A[35] came from this spot, as well as some worked flints and a large number of flakes and splinters" (Bushe-Fox 1915, 20). The interpretation of this area as an occupation site was based solely on the finds of pottery and flint; no features were recorded (*ibid*) and no other anomalies were detected here by the geophysical survey.

[34] A similar response was detected in a survey at Mull Hill (Isle of Man) which proved to relate to small pieces of rust in and on the ground (Darvill 1997, 58). The rust had fallen from a metal fence which had been removed some years prior to the survey (T Darvill, pers. comm.).
[35] Class A pottery is amongst the earliest Iron Age material recovered from Hengistbury. It is hand-made, of a rough, hard fabric, and similar to Hallstatt forms. The similarity with Hallstatt material led to it being dated to pre-400 BC (Bushe-Fox 1915, 32-3).

In the eastern zone, through Longfield, the survey was hampered by dense vegetation including extensive heather and gorse patches. A complete examination of the area was not therefore possible but in the areas which were surveyed (Figures 21 and 22), two distinct anomalies were detected, one of curvilinear form (anomaly **h**), and the other a sub-circular outline (anomaly **k**).

The response of anomaly **h** was indicative of a ditch feature that had filled with magnetically enhanced material, perhaps settlement debris. Despite closely following the line of a current, compressed grass footpath, further survey with different instruments determined that the anomaly was indeed the response to a sub-surface feature. When compared with Cunliffe's plan of the area (1987, Illustration 6), the line of anomaly **h** exactly matched the interface between the gravel terrace and southern edge of the postulated Barnfield inlet (see Figure 18). The response represents either the geological interface between the gravel terrace and the sandy area of the former inlet, or perhaps a track or path that ran along the edge of the inlet when it was tidal during the mid-late Iron Age. The potential archaeological significance of this feature is high and suggests that there is at least geological definition to the area that Cunliffe suggested for the mid-late Iron Age Barnfield tidal inlet.

The highly positive response of anomaly **k** was also surveyed with different instruments to provide further definition of the characteristics of the potential feature (Figures 24, 25, 26 and 27). The location matched another of Bushe-Fox's sites (12) that was recorded as a "Small hearth of clay and stones" (Bushe-Fox 1915, 21). The survey responses confirmed Bushe-Fox's interpretation as they were indicative of the magnetically enhanced remains of a kiln or hearth feature. This suggests that the material excavated in 1911-12 was redeposited when the trenches and pits were backfilled.

The results of the survey suggest that there are subsurface archaeological features within the area of Barnfield, but they are not as densely concentrated as in Longfield and the area of Cunliffe's excavations. It was useful to discern the locations of earlier excavation disturbances and accurately to plot them within Barnfield, and to eliminate the anomalies from consideration as potential archaeological features. It is likely that the main activity at Hengistbury Head was concentrated on the foreshore of the harbour, in the lee of Warren Hill with 'activity zones' (hearths, kilns, etc.)

scattered at discrete locations around the periphery. Recent geophysical survey for Wessex Archaeology (GSB Prospection 2001; Wessex Archaeology 2001) 'outside' (west of) Double Dykes revealed no traces of archaeological features, although the readings were obscured by disturbance from ferrous and modern debris.

The limitation of the survey coverage, due to the problems of vegetation and anthills, meant that it was not possible to identify features with accuracy in Longfield. It was particularly disappointing not to be able to distinguish any internal features within the known settlement area. If the vegetation is cleared in the future, it would be beneficial to resurvey this area. However, it can be concluded, on the basis of this geophysical survey, that archaeological features are present in the area west of Cunliffe's 'settlement' excavations but not as densely concentrated. This suggests that the main area of Iron Age activity at Hengistbury Head is not extensive, although Barnfield and Longfield contain isolated areas of archaeological potential.

Despite the problems with the vegetation, the aim of the survey was broadly achieved and no evidence of major occupation was identified within Barnfield. It is concluded that the settlement and main activity areas were restricted to the zone near the harbour foreshore, and were not as extensive as had been assumed in the past. This suggests that if Hengistbury was indeed a 'typical' and major international port, the size of the settlement for such sites need not be physically extensive.

6.5 Summary

Since the investigations of Bushe-Fox at the start of the twentieth century, Hengistbury Head has been known as an Iron Age trading port. Further investigations added to the detail of the layout of the site and the artefacts found there, but there was no challenge to the interpretation that it was the major port of trade on the south coast in later prehistory. This case study has shown that some of the assumptions regarding the site are not fully supported and would benefit from further work. In particular, it has been demonstrated that the size of the settlement was probably not as extensive as has been suggested. However, the port function of the site is clear and, as the first case study and a known Iron Age port, it was the best place to try out the relevance of the whole suite of elements proposed here as integral components of the coastal node model. As shown above, Hengistbury matched the checklist and the associated elements of the nodal suite so they were applied with confidence to other sites considered in this study.

The results of the geophysical survey cannot be conclusive, but do suggest that the main focus of Iron Age activity was limited to the immediate vicinity of the harbour, with the wide expanse of Barnfield, within the Double Dykes earthworks, left clear. This conforms to Cunliffe's later estimation of more limited settlement area (1987, 75) rather than the extended "urban settlement" proposed in 1978 (Cunliffe 1978, Figure 11).

In the terms of this study, the nodal function was confirmed at Hengistbury Head with links to sites in the immediate vicinity and along the rivers, as well as along and across the Channel. However, there were not vast quantities of continental imports evident at the site. One explanation for this may be precisely the key role of the proposed nodal function in redistributing the imported goods to other nodes and the hinterland, including Poole Harbour (Chapter Seven). A comparison of the chronologies and activities at both sites (Table 9) suggests they functioned in a complementary manner (*cf* Cunliffe and de Jersey 1997) (see also Chapter Nine).

Chapter 7

Case Study 2: Poole Harbour, Dorset

7.1 Introduction: the research questions

Poole Harbour is situated mid-way along the English Channel coast and is the second case study reported here (Figures 28 and 98).[36] It was selected as, despite indications in previous studies relying mainly on finds from the area (Peacock 1977; Williams 1977; 1988; Cunliffe 1987) that the harbour was an Iron Age port involved in trade with the continent, it had not previously been investigated as such. This and other features (see Chapter Five) led to Poole Harbour being considered a 'probable' nodal site. It was therefore selected as one of the three case studies for this research, as it provided the opportunity to investigate further a 'probable' class site.

The study of Poole Harbour has permitted further research into the nature and characteristics of a coastal site, which informed the nodal model, notably the enclosure elements. The relative proximity of the 'definite' coastal node site at Hengistbury Head provided a further interesting dimension. It was of particular relevance to consider whether the site had indeed operated as an international port alongside nearby Hengistbury Head, or if it had a different role in the network of coastal sites, or whether the two were not exactly contemporary.

The 'node' of Poole Harbour was considered as a complex of elements (see Chapters Four and Five). All the elements associated with nodal complexes are present at Poole Harbour (see section 7.5.1 below for detail):

- the harbour is fed by four rivers which provide good inland access
- previous investigations have identified local enclosures of certain or probable Iron Age date in the littoral zone of the harbour, and within five kilometres of its shores
- a high ground element, *c.* five kilometres north of the harbour, could have been associated with the activities in and around the harbour.

[36] The study area covers the whole of Poole Harbour although the emphasis is on locations in the southern harbour area. Known sites within five kilometres of the harbour shore are also considered.

- Although the harbour does not have an offshore island, it contains several 'in shore' islands which provide naturally differentiated spaces within the harbour.

The investigation of Poole Harbour examined the entire complex of these elements with a specific focus on the site of Green Island (a site where Iron Age imports and occupation evidence had previously been identified) and its potential relationship with the neighbouring, apparently contemporary, sites of Furzey Island and Ower Peninsula.

The work undertaken for this case study may be summarised as follows: initially a review was carried out of all previous work within the study area, both in relation to its physical characteristics (7.2 below) and questions of the evidence for the variation on sea levels (7.2.1), and also its history of archaeological study (7.3 below). An understanding of contemporary sea-level was crucial in defining Poole Harbour in the Iron Age and is a particular focus of this study, combining data from various published sources with new information from the investigations of this study.

Within Poole Harbour, Green Island appears to have been a major focus of activity in the later Iron Age, and an enigmatic structure, long known as the 'Green Island causeway', was considered and fieldwork (including survey by divers) was carried out in tandem with the other research reported in this chapter. This work is reviewed in detail in section 7.3.6 below and is critical to the understanding of the chronology of use of the adjacent sites and sea-levels in the harbour during the Iron Age period. An assessment of the archaeology on Green Island was carried out by a test pit survey and limited excavation. In addition, a sample survey of the seabed was conducted between Green and Furzey Islands and geophysical survey was undertaken at Ower Peninsula. The complete programme of fieldwork is reported in section 7.4 below.

The concluding sections (7.5 and 7.6 below) of this chapter draw together all the material outlined above. The interpretation of Poole Harbour as the focus of a nodal complex is reviewed, and the status of the site as at least 'probable' is confirmed. The various foci of activity during the late Iron Age are reviewed in the light of new fieldwork. The Green Island 'causeway' (or 'jetties') is the subject of a separate discussion, and a revised interpretation of these features is advanced.

7.2 Physical description of Poole Harbour

Poole Harbour covers almost 4000 ha and is one of the largest, yet shallowest, harbours in the world (Wilkes and Hewitt 2000, 3) (Figure 28). It is fed by the rivers Sherford, Piddle, Frome, and Corfe that together drain over 77,500 ha (*c.*300 square miles) through Dorset and adjacent areas (May 1969, 143). Within the harbour today, two deep water channels (Middle Ship Channel and South Deep) provide corridors for water flow and access for vessels of all sizes. Dredging regimes through the modern era mean that the northern channel, the Middle Ship Channel, is now the preferred, more dominant, route from the harbour entrance to the main port facilities of Poole. However, in antiquity, prior to dredging and the use of mechanically powered craft, the more sheltered South Deep channel leading directly to the Corfe River, Upper Wych, Wareham Channel and rivers Frome and Piddle, was probably the favoured route (G Wareham, pers. comm.).

Prior to a rise in sea-level at the end of the Iron Age (see below), two of the current islands in the south of the harbour, Furzey Island and Green Island, were one landmass which was separated from the mainland by the South Deep channel (Cox and Hearne 1991, Figure 91; see section 7.4.2 below). For the purpose of this study that former single landmass is named 'South Island'.

The current entrance to Poole Harbour is narrow, less than 300 m between North Haven and South Haven (Sandbanks and Studland), creating a funnelled run of water at spring tides that can be utilised advantageously by small craft, depending on wind direction. Surface currents now run through the harbour mouth at up to five knots (BP Exploration 1991, 2). The approach from Poole Bay requires navigation around Hook Sand, but is generally clear of obstacles and sheltered by land from winds in all directions other than east. Offshore surface currents rarely exceed one knot (*ibid*). The harbour experiences a double tide in each 24 hours with a current range of just 1.3 m between low and high springs (*c.*0.5 mOD and 1.8 mOD respectively) – one of the lowest ranges on the English Channel coast (Figure 29). However, the physical nature of the harbour is such that even at the lowest spring tide, the level of the water in the channels remains above mean sea level for most of the day. Current research (Cook in prep.) has suggested that the harbour entrance may have been *c.*1.5 km to the north in antiquity (R Cook, pers. comm.; see also

Ward 1922, 97; Green 1940; Robinson 1955). However, the approach through Poole Bay would have followed the same route past Hook Sand, and within the harbour the entrance channel fed directly into the southern channel leading to South Deep.

In common with most sites along the south coast, Poole Harbour has a complex history of sea-level change, erosion, and deposition. Over 80% of its area is intertidal mud flat and salt marsh of considerable ecological interest (May 1969; in press; Syratt 1984, 9). The harbour area is classified as a SSSI. The geology is predominantly sands and gravels, and the littoral area is characterised by sand beaches or reeds and *spartina* giving out to a mainly heathland landscape. This developed following extensive deforestation in the late Bronze Age so that throughout the Iron Age there was only limited tree cover (Scaife 1991). Few timber resources would have been available in the immediate vicinity (see Haskins 1978; M Allen *in* Cox and Hearne 1991, 8-9). The soils, now as then, are typically podzols, poor and acidic, so not capable of supporting much agricultural activity (Scaife 1991). Therefore the Iron Age inhabitants of the area must have had good reason to settle here and to have had alternative means of subsistence, rather than inhabit the more fertile agricultural lands of the nearby Dorset chalklands. It is possible that exploitation of the marine resources, including salt, the availability of good quality clays, shale and stone, and opportunities for manufacture and trade, were sufficiently advantageous to provide a viable subsistence base. Agricultural produce would have been acquired from other sites via the trade and communication network.

The heaths have historically been used for rough grazing and supplying fuel. Areas of enclosure and reclamation from the heath are known around the harbour (see Wilkes and Hewitt 2000). Nowadays, the northern harbour fringe is heavily developed by the port town and residential expansion of Poole, whereas the south (where most of this investigation is focussed) generally retains its open heathland character.

7.2.1 Sea levels in Poole Harbour during the Iron Age

As detailed in Chapter Three, sea-level change along the English Channel coast has not been uniform and, for the purposes of this study, has been approached on a local, site specific basis. Despite various programmes of boring associated with water services and oil extraction (undertaken by Wessex Water and BP), Poole Harbour has not provided many datable levels: for example, none of the peat horizons revealed in the bore holes have been radiocarbon dated. However, using foraminiferal data from multiple cores, Edwards (2001) constructed a relative sea-level record for the harbour over the past 5000 years. The cores were extracted from the areas of salt marsh at Arne and Newton, both in the south of Poole Harbour where the focus of this study lies. Four phases of relative sea-level (RSL) change were identified: the interface between phases i and ii occurred in the Iron Age at *c.*2400 cal BP (*ibid*, 221). During phase i (*c.*4700 cal BP – *c.*2400 cal BP) RSL rose. In phase ii (*c.*2400 cal BP – *c.*1200 cal BP), of particular interest to this study, RSL was stable or possibly falling slightly. The mean tide level (MTL) for that phase was calculated to be *c.*-1.0 mOD (*ibid*, 230).

All other dated levels came from archaeological investigations that were carried out mainly along the northern littoral, in the area of most development (Figure 28). The Foundry site was located on the western edge of Poole 'old town', on an alluvial peninsula that protruded into Little Channel at the mouth of Holes Bay (Watkins 1994). As well as evidence of medieval occupation, the excavation also uncovered a ditch terminal that contained late Iron Age/Romano-British pottery, including briquetage, and was dated to the first centuries BC/AD. The cut was *c.*750 mm wide and *c.*220 mm deep with a roughly v-shaped profile and rounded based. The top of the cut was at -0.5 mOD, the base at -0.72 mOD (Watkins 1994, 9). Watkins (*ibid*) applied Jarvis' (1992) proposition that HAT for Poole Harbour in the late Iron Age was -1.0 mOD to state that the base of the ditch was 280 mm clear of the intertidal zone. However, to be free of the risk of flooding by tidal overspill, the level of the top of the ditch must be considered. This was *c.*0.5 m clear of the HAT level, similar enough to the 0.4 m clearance suggested by Waddelove and Waddelove (1990) for buildings. That suggests it is appropriate to use Jarvis' -1.0 mOD HAT estimate for sea level in Poole Harbour during the late Iron Age.

Jarvis' (1992) calculation of late Iron Age HAT was based on the survey of a site in the intertidal zone of Brownsea Island. The site was initially observed by Alan Bromby in March 1973 as a ditch or hollow containing a quantity of broken Romano-British pottery. At that time, Bromby hammered two iron rods into the ground to lie flush with the sandy surface. Observations one year later revealed that they then stood nine inches (*c.*230 mm) proud (Bowen 1974; Jarvis 1992, 89), attesting to the rapid rate of marine scour and erosion at that location. The feature had been totally eroded by 1992. Two interpretations were presented: either that the discarded potsherds (interpreted as rubbish) had accumulated in a hollow on the contemporary shoreline, or that they had been dumped in a pit or ditch within or on the edge of a settlement. Jarvis (1992, 90) favoured the former interpretation and, as the surveyed level of the site was -1.01 mOD, he used that figure to represent the contemporary (LIA/RB) HAT. Current HAT in Poole Harbour is 1.66 mOD so a rise in sea level of *c.*2.67 m since that time can be inferred. This accords with the *c.*2.6 m rise proposed by Cunliffe (1987, 6-13) based on the level of the gravel hard excavated at Hengistbury Head, just 15 km to the east (Jarvis 1992, 90) (see Chapter Six).

It is notable that Jarvis' use of archaeological data produced the same *c.*-1.0 mOD level as Edwards' (2001) calculation from faunal dating. Although Jarvis suggested that level as the HAT and Edwards proposed it was the MTL the correlation between the two, supported by conclusions from subsequent excavations and calculated levels, should not be ignored, particularly as the tidal range in Poole, as noted above, is remarkably small.

Farrar (1977) suggested that Poole Harbour was mainly saltmarsh prior to the Roman marine transgression (see Hawkins 1971), whereas Jarvis (1992, 91) stated that if late Iron Age HAT in Poole Harbour was indeed *c.*-1.0 mOD, the harbour would have mainly been a network of creeks and rivers, approximately one quarter of its current size.[37] However, water flow and sediment rates were different at that time, and the effects of erosion on the shores of the harbour and islands within would not have reached the rate and produced the patterns we see today. Therefore it is not, as Jarvis (*ibid*) suggests, a simple case to use the current -1.0 m contour as the line of the ancient shore. As cautioned by various authors, (including Bournemouth University 2001), modern bathymetry cannot be used to identify past contours. The situation in Poole Harbour is exacerbated by the intensive dredging regime which releases much sediment from the channels to be deposited elsewhere. The nature of vegetation has also changed and the colonization of Poole Harbour by

[37] Patches of peat on the current harbour bed are probably the remains of former dry or intertidal land surfaces. These have not been studied or mapped in detail, but mentioned by fishermen and divers.

spartina since 1890 has impacted on the retention and release of sediments on the harbour fringes (May 1969).

What is evident from these studies is that, although Poole Harbour in the Iron Age would have contained less water than today, due to the lesser extent of alluvial deposition at that time it would still have presented as an expanse of water suitable for access by the various types of contemporary vessel. Figure 30 illustrates a suggested reconstruction of the southern harbour outline during the late Iron Age.

7.3 Previous archaeological work

In this section, the known archaeology of the components of the Poole Harbour Iron Age complex (Figure 31) is reviewed.

7.3.1 General background

The amount of archaeological investigation in and around Poole Harbour has been largely determined by the level of development and agricultural activity. Modern development in the town of Poole has resulted in isolated archaeological investigations around the north of the harbour but elsewhere few rescue excavations have been undertaken and there has been little opportunity anywhere around the harbour for field walking or aerial reconnaissance. The heathland vegetation is not as visibly susceptible to the effects of subsurface archaeological features as cereal crops or grass, nor to the drought conditions that often cause soil marks to be distinguished. However, the area benefited from the antiquarian observations of John Hutchins (1803; 1862-73), and more recent surveys by the RCHM (1970) during the final stage of their county inventory survey. Specific observations and limited excavations were conducted through the early and mid twentieth century by J B Calkin, H P Smith, Ray Farrar, and Alan Bromby, and more recently observations have been recorded by Keith Jarvis (1981; 1985a; 1985b; 1992; 1993). However, the most extensive studies have been occasioned by the development of the Wytch Farm Oil Field by BP from the late 1970s – 1990s with archaeological investigations on Furzey Island (Cox 1988) and at Ower Peninsula (Woodward 1987; Cox and Hearne 1991).

Other areas around the harbour have been investigated and evidence gathered from later periods (e.g. medieval Poole (Horsey 1992), the Foundry site (Watkins 1994), Bestwall Quarry (Ladle 2000; 2003)) and the sixteenth century AD Studland Bay wreck (Ladle 1993; Parham in prep.) discovered immediately outside the harbour entrance. Further afield, late prehistoric sites at Worgret (Maynard 1988; Hearne and Smith 1991), East of Corfe River (Cox and Hearne 1991, 27-46), and Bulbury Hillfort (Cunnington 1884; Cunliffe 1972) are likely to have been associated with the activities in and around the harbour. The archaeological background of the sites in the hinterland of the harbour is considered in more detail in section 7.5.3 below.

Poole Harbour is well known for its pottery output, particularly of utilitarian forms of Black Burnished Ware (BBW) in the late Iron Age and Romano-British periods (see Williams 1977). The local clays were easily accessible and produced a robust fabric, even from coarse firing. The suitability of the clays for pottery production is reflected in their use throughout subsequent centuries.[38] A number of BBW production sites have been identified around the harbour, and distribution of the material extended throughout southern Britain and beyond (Farrar 1977; 1982; Hearne and Smith 1991; Allen and Fulford 1996).

The pottery output from Poole was distributed via the coastal and riverine networks (Allen and Fulford 1996). The same distribution network was used for another main product of Poole, Purbeck stone. This is a form of limestone 'marble' that was quarried throughout the Purbeck area and transported by track, river and coast to Poole Harbour for onward shipping along the south coast. Statuary, building elements and other items made of Purbeck Stone have been recovered from many early Roman sites including Exeter (Toynbee 1979), Fishbourne (Cunliffe 1974), Caerleon (Beavis 1970) and London (*ibid*). A summary of find locations was compiled by John Palmer (1996). The pottery and stone distributions from Poole made extensive use of the riverine and coastal networks that are a significant aspect of this research.

The sites of specific interest to the study of the probable Iron Age complex are located in the south of the harbour and detailed below (and in Appendix One, Site

[38] Poole clays were supplied to Josiah Wedgwood in the eighteenth century (Cox and Hearne 1991, 23) and more recently Poole Pottery was produced to international acclaim.

17). Table 9 provides a summary of the chronologies developed for the main sites from fieldwork investigations and subsequent interpretations. The following sites represent the main components that match the coastal node model.

7.3.2 **Ower Peninsula** (Figure 31)

Ower Peninsula, including the area known as Cleavel Point, is the primary mainland site considered in this study. It is surrounded by water on two sides: to the north is South Deep, with Green Island currently *c.*400 m off shore; to the east is Newton Bay that dries to extensive mud flats at mid and low tides. The peninsula is currently under grass and occasionally used for animal grazing. A shallow cliff (up to *c.*0.4 m high) marks the MHW level, distinguishing the field area from the intertidal mud, reed and *spartina* beds. The 'cliff' is breached in places and the edges of the field regularly flood. Ceramic material and kiln remains erode out of the northern cliff.

Previous investigation at Ower (Woodward 1987a; Cox and Hearne 1991) recorded an extensive coastal settlement with evidence of late Iron Age pottery and salt production, and shale and metal working. Contemporary imports from the south-west of Britain and from the continent were also recovered. The site was interpreted as a component in the late Iron Age international trade network, and its establishment was dated to *c.*20 BC, operating until the second century AD (Woodward 1987a; Cox and Hearne 1991). However, as at Hengistbury Head, the extent of the settlement had not been determined.[39] Therefore the research questions (which are addressed in detail in section 7.4.1 below) sought to investigate the coastal fringe of the settlement area and to consider whether Ower conformed to the postulated coastal node model.

The first recorded identification of a potential prehistoric site at Ower was made by H P Smith in 1940, although in his account of antiquities in Dorset, John Hutchins had enigmatically concluded his half page entry for Ower with the single line "Here was formerly a pottery" (1862-73, 538). No archaeological work was undertaken until Norman Field conducted a minor excavation on the north-west

[39] The total area covered by the enclosures and ditches detected in the 1979-81 geophysical survey (Figure 32) is approximately 10 ha, but that did not define the edges of the settlement.

fringe in 1951 (reported in Farrar 1977). This recorded evidence of the pottery referred to by Hutchins in the form of a kiln and debris from pottery manufacture – still one of the few confirmed Black Burnished Ware 1 kiln sites in the area (Williams 1977, 185).

The area was reclaimed from heathland for pasture in the post-war years and was subjected to deep ploughing during the 1970s. The first major phase of archaeological investigation commenced in 1978 as part of a research project initially concerned with sites of mineral extraction and exploitation in Purbeck (Sunter and Woodward 1987). This coincided with plans by BP to construct water pipe lines from the shore through the fields at Ower. A series of 1.0 m x 1.0 m test pits, located on a 20 m grid, were excavated along the pipe line route. The distributions of artefacts, features, and soils thereby revealed determined the position of a 20 m x 15 m area excavation. Further 1.0 m wide machine trenches were additionally cut along the route of the pipe line, and a geophysical survey was undertaken. Between 1978 and 1981 further geophysical surveys and field walking were conducted (Woodward 1987a, 45).

The geophysical surveys (all of which were carried out by magnetometry) revealed a complex of anomalies representing the enclosure ditches of a planned settlement layout (Figures 32 and 33). However, neither the landward nor coastal edges of the settlement were defined. It was concluded that the site had probably covered a much larger area and the coastal edges had since either eroded or been covered by silt (Woodward 1987a, 47; see also 7.4.1 below).

The dates of the excavated features were inferred from the artefacts recovered, particularly the imported pottery. Those dates were also applied to the unexcavated anomalies detected by the geophysical survey. An overall scheme of phasing was subsequently developed, again based on the datable artefacts. This ran from the late Iron Age to post-Roman periods (Woodward 1987a, 541-2). The report (Woodward 1987a) did not provide an overall table correlating the finds, so Table 10 summarises the data presented that related to the Iron Age (phases 1 and 2) use of the site.

In 1988, prior to actually cutting the water pipeline, BP commissioned further archaeological investigation that excavated the length of the pipeline with a trench 580 m long and 1.5 m wide (Cox and Hearne 1991). The excavation reinvestigated the areas exposed in 1978 and revealed further detail regarding the relationships between the features and the closely dated imports. This led to a reappraisal of the original phasing scheme and removed the division of a two-phase Iron Age occupation, instead suggesting a single phase of late Iron Age activity at Ower from the late first century BC to later first century AD (Cox and Hearne 1991, 71-3).

The long trench revealed five discrete enclosure circuits (from eight ditches) and two major boundary ditches. These were matched to anomalies detected by the earlier geophysical survey (Figure 32). Table 11 summarises the detail of the enclosures and ditches.

Ditch 335 contained much shale working debris and 97% of the worked flint from the site came from its upper fills. The ditch cut below the present water table and a first century AD Gaulish flagon base was retrieved from the waterlogged lower fills. It was suggested that this was the boundary ditch marking the eastern extent of the Iron Age settlement (Cox and Hearne 1991, 76). The suggestion was based on the fact that no further deposits were revealed to the east of that line. However, following the line of ditch 335 to the north and west (on the 1979-81 magnetometry plots, Figure 32), it meets and crosses another major linear feature. Further anomalies were detected 'outside' the area bounded by the two linear features. Ditch 335 may instead have been part of a drove-way or a component of the internal organisation system with further features to the east that have been lost to erosion or masked by silting. A limited magnetic scan and auger survey indicated features did lie beyond the ditch (Woodward 1987a, 47). This was further considered as part of the fieldwork of this case study (see section 7.4.1).

Interpretation of the excavation data suggested that although pastoral activities were practised at Ower, agriculture was not the primary use of the site (Cox and Hearne 1991, 78; 79). As suggested in 7.2 above, the inhabitants utilised the local resources for shale working, salt production and the manufacture of pottery. Agricultural products were obtained from sites in the hinterland, such as 'East of Corfe River' (*ibid*, 79). Finds of imported ceramics formed the basis for dating the site features as a planned settlement: "It is especially important to note that no evidence has been forthcoming for an earlier foundation to the site than the late first century BC" (*ibid*, 78). However, it is possible that the construction of this major single phase site destroyed or obscured evidence from earlier activity at Ower. This is of particular significance when considering the relationship between Ower and other components in the Poole Harbour complex (see below).

Close to Ower is the neighbouring peninsula of Fitzworth Point. J B Calkin investigated the site of a German bomb crater *c.*100 yards south of the point in 1947 and recovered numerous Iron Age A2, B and C sherds, with iron slag, burnt daub, slingstones, and part of a shale armlet. The site was extended north-east to the shoreline by the excavation of test pits. One contained Iron Age C wares and the rim of a shale jar stratified above earlier Iron Age A material (Calkin 1949, 42). These finds suggest later Iron Age activity at Fitzworth, possibly connected with manufacturing, as at the neighbouring littoral site. The area of Fitzworth, that is privately owned, is suggested as important for further investigation associated with the port function of the harbour (see section 7.5 below).

7.3.3 Brownsea Island

Brownsea Island is the largest and most northerly in a chain of three islands stretching offshore from Ower. It has long been in private ownership: the current owner is the National Trust with areas of the island leased to the John Lewis Partnership. There has been little opportunity for archaeological investigation on the island itself, although a medieval cemetery was recorded in the early 1980s (Jarvis 1981).

Evidence for the prehistoric use of the island has not been revealed, although the offshore site discovered by Alan Bromby (Bowen 1974; Jarvis 1992 and see 7.2.1 above) suggests activity through the Roman period that may have had an earlier origin.

One of the items of significance and of direct relevance to this study is the 'Poole log boat' (see also Chapter Three). This was recovered from the edge of the main ship channel *c.*75 m off the current eastern shore of Brownsea Island during dredging works in 1964 (Peers 1965). As described in section 3.3.5.1 above, the boat was a sophisticated type within the log boat class, having a slot fitted transom and well-shaped bow. The organic caulking around the transom survived well enough to provide a radiocarbon determination of 2245+/-50 BP (Q-821), calibrated to 397 – 176 BC (see also McGrail and Switsur 1975, 191-200). This middle Iron Age date is of great significance in relation to the investigation of Green Island and the associated 'jetties' (see sections 7.3.6 and 7.5.4 below). The presence of the log boat attests to inland waterborne traffic in the Iron Age. The area of the find has not been investigated further so it is not known if the vessel was associated with a shoreline, beaching point, or waterside facility as at Buckland's Farm (Nayling et al. 1994) or Caldicot (Parry and McGrail 1991a; 1991b). Alternatively, the vessel may have foundered and sunk off shore. It is likely that, as Jarvis asserts, "There may be many ancient wrecks preserved in Poole Harbour beneath the mud" (1985b, 154).

According to the best estimates for former sea level, Brownsea Island was isolated and distinct from Furzey/Green Islands ('South Island') by the Iron Age (see Cox and Hearne 1991, Figure 91). Given the lack of prehistoric activity recorded from Brownsea, especially compared with Furzey and Green Islands, it is not know what role, if any, it had in the function of Poole Harbour at that time.

7.3.4 Furzey Island

Furzey Island (sometimes spelt Furzy) covers *c.*12 ha and lies *c.* two kilometres opposite the current entrance to Poole Harbour and between Brownsea and Green Islands. It is separated from each only by narrow water channels. The island is comprised of gravels, sands and clays, characteristic of the Dorset heath. It is fringed by sand and shingle beaches which vary from 5 – 15 m in width and from which low cliffs rise to *c.* four metres around the southern shore (see Figure 53b). Extensive mudflats that are visible at low tide lie to the east. The entire island is a low, gently undulating ridge rising to *c.*7 m in the east, *c.*9 m in the west, and sloping down to the north-east to an area of saltmarsh.

Prior to 1985, the only archaeological study of Furzey Island was the record of features and artefacts observed eroding from the sand cliffs on the south side of the island. Ray Farrar (1963a) reported an excursion made to the island in 1959 with Alan Bromby to investigate reports of the eroding material made earlier by H P Smith and J B Calkin. Iron Age A-B ceramic was found in a possible hut floor and in a clay-lined 'gully'.

As part of the development of the Wytch Farm Oil Field, BP acquired Furzey Island in 1983. It was previously mainly in private ownership except for brief use by the Ministry of Defence during the Second World War when the Poole Harbour islands were used as bombing decoys to protect the munitions works at Holton Heath (see Hearne *in* Cox 1988 for details of previous ownership). BP planned a new well site and associated infrastructure on Furzey Island and, as a result of

Smith's earlier observations (see Farrar 1963a), two phases of archaeological evaluation and investigation were conducted by Wessex Archaeology in 1985 and 1987-8 in advance of the development (Cox 1988; Cox and Hearne 1991).

The 1985 survey and excavation established that "an extensive system of enclosures" (Cox 1985, 158) existed across the island, including some surviving earthworks; it is possible that these were a continuation of the system of enclosures identified on Ower Peninsula (see Table 11 for enclosure detail). A magnetometry survey was only possible in areas where vegetation cover permitted, and did not detect the full range of features subsequently exposed by excavation. More extensive excavations were undertaken in 1987-8 (Cox and Hearne 1991). Two phasing schemes were developed for activity on the Island, one based on the ceramic finds (Cox 1988, 52), the other from the excavated stratigraphy (Cox and Hearne 1991, 47; 48) (combined in Table 12).

The ditch fills contained late Iron Age local and imported pottery, amphora sherds, hand and lathe worked shale debris, evidence of salt-production, and a small amount of iron-smithing waste (Cox 1985, 158). Stone items from the south-west region included a hammer from the Budleigh Salterton Pebble Beds and quernstone fragments of Old Red sandstone from east Devon (Cox 1988, 65).

The imported wares led to the conclusion that Furzey Island, and indeed Poole Harbour, was part of the late Iron Age international trade network (Cox 1988; Cox and Hearne 1991; Fitzpatrick *in* Cox and Hearne 1991), yet in 1985 just three sherds of cordoned ware and three pieces of Dressel 1 amphora were recovered (Williams *in* Cox 1988) compared with 564 sherds of local ware (Underwood *in* Cox 1988). The imports therefore account for just one per cent of the total ceramic assemblage recovered from Furzey Island (Table 13).[40]

The 1985 development included the construction of a slipway through the intertidal zone. The watching brief (Jarvis 1985b) did not observe any artefacts, but did record a v-shaped ditch, probably of late Iron Age date, exposed in the southern cliff section, 50 m from the slipway. From his observations, Jarvis assessed that the south-east shore had eroded by 25 – 100 m since the Roman period (1985b, 154). A similar figure was suggested by Peter Cox who compared the complete and partially eroded enclosures on the island and suggested a minimum distance of retreat since the Iron Age of at least 70 m (*c*.0.035 m pa). However, in his 1969 analysis, May declared that at Arne and west Brownsea, erosion was at the rate of 0.35 m pa. As Cox observed (1988, 61), those sites are comparable in form to Furzey Island, but May's rate would suggest a loss of *c*.700 m of land since the first century AD, which is ten times greater than Cox's minimum calculation for Furzey.

It has been suggested that during the late Iron Age, Furzey and Green Islands were connected to Ower as one extended peninsula until the early Romano-British period when coastal erosion, rising sea-level, and changes in the hydrography of the harbour flooded the land link (Cox 1985, 158; Cox and Hearne 1991, Figure 91c). This would imply the greater (massive) rate of subsequent erosion. However, fieldwork undertaken for this study (see section 7.4.2 below) has reinforced the suggestion that Green and Furzey Islands were indeed one landmass ('South Island'), but that before the middle Iron Age it was already separated from the mainland at Ower by the South Deep Channel.

7.3.5 Green Island

Green Island is the smallest and most southerly island in the chain of three. As with the other islands, it is almost entirely composed of sand that is easily eroded by the actions of wind and sea: it is estimated that the current rate of erosion is *c*.50-100 mm pa (V May, pers. comm.). The most severe erosion has been from the southern cliff and beach.

In recent times, the island has been in private ownership and, unlike Furzey Island, had been subject only to sporadic and opportunistic archaeological investigation prior to the studies undertaken for this research. During the mid twentieth century, H P Smith visited the island and observed archaeological deposits including Iron Age pottery and evidence of shale working (reported in Calkin 1955, 53-4; Farrar 1963a). In 1951, Smith returned with Alan Bromby to excavate eight test pits (Farrar 1964; 1967; Bromby 1969). These pits were ranged through the north-east of the island (see Figure 34). In addition, four areas of exposed cliff were

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[40] Lisa Brown (*in* Cunliffe and de Jersey 1997, 65) lists four fragments of imported black cordoned ware and six fragments of Dressel I amphora from Furzey. Even so, the 10 sherds still account for *(footnote continued...)*

cleaned back. The test pits revealed Iron Age and early Romano-British material at depths of two to three feet (0.6 m – 0.9 m) (Farrar 1967, 121).

The evidence for shale working included both hand-cut and lathe-turned cores, and flints that would have been used as tools for working the shale. This is significant as it makes Green Island one of only a handful of known sites where pre-Roman lathe-turned production was carried out (Calkin 1955). In addition, pottery finds included early, middle, and late Iron Age wares; Romano-British material including samian sherds; and non-local pieces including Hengistbury (class C) ware and early imported amphorae (*ibid*). This links Green Island directly with the Iron Age trading emporium of Hengistbury Head *c.*15 km to the east. It was concluded from the material recovered that the areas of pits *l* and *b*/*h* were "most likely to reward further exploration, particularly the latter with its connection with what may well be the pre-Roman wine trade" (Farrar 1967, 121).

Based on the finds made during the course of the earlier investigations, it has been suggested that Green Island was involved in international trade in the Iron Age (Peacock 1977; Williams 1977; 1988; Cunliffe 1987). These observations formed the background to fieldwork undertaken on the island for this project (section 7.4.3 below).

7.3.6 The 'Green Island causeway' (Figure 31)

Central to the interpretation of the function of Poole Harbour in the Iron Age and sea-levels at that time is the enigmatic feature known as the 'Green Island causeway'. The investigation and interpretation of the 'causeway' will therefore be discussed in some detail below (and see section 7.5.4).

Early study of the 'causeway'

Hutchins stated that Green Island "lies north of Ower, opposite to it, and was formerly joined to it by a bridge, whose remains were still visible in 1774" (Hutchins 1862-73, 538). The 'bridge' remained unexplored until an investigation by a troop of Boy Scouts in 1959 (Taylor 1959; Bugler 1967) by which time it was known as the 'Green Island causeway' and had been recorded as such on Admiralty

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less than two per cent of the total ceramic assemblage.

charts since their first publication in the early nineteenth century. The Scouts cut a section through the submerged structure and recorded what they observed of its construction and form. They perceived a 'corduroy' road, approximately 11 m wide, running discontinuously between Cleavel Point and Green Island.

At that time, the precise form, purpose, and date of the causeway were not known. Seven proposals were set out for the date and purpose of the feature (Bugler 1967, 160):

a) Romano-British*

Contemporary with the pottery kilns at Ower and shale working on Green Island. However, Bugler commented that "it is doubtful whether the Romano-British economy would have demanded such a substantial 'causeway'" (1967, 160).

b) Saxon

A boom defence system for protection from sporadic Viking raids.

c) Saxo-Norman*

For use by salt-workers mentioned in Domesday Book as active in the area at that time. Again, Bugler was reluctant to attribute such an elaborate scheme to that work.

d) Fourteenth century*

Associated with plans by Edward III for the development of Newtown *c* one mile south-east of the causeway. (These plans were abandoned before much work had been undertaken.)

e) Ninth – sixteenth centuries*

Built by the monks of Milton Abbey to access a chapel known to have been used by them on Green or Furzey Island. This is the idea favoured by Bugler and accords with similar causeway/chapel associations, as at Witham (Stocker and Everson 2003).

f) Sixteenth century

Part of a larger scheme to connect Brownsea Island to the mainland via links with Furzey and Green Islands. Bugler suggested this could be connected with the castle built on Brownsea Island by Henry VIII, or to link the chapels on Brownsea and Green/Furzey Island used by the Milton Abbey monks.

g) Post-medieval

An attempt to construct a 'Dutch' polder that was abandoned.

(* originally proposed in Taylor 1959.)

Recent study of the 'causeway'

An investigation of the structure was undertaken by Poole Bay Archaeological Research Group, Poole Maritime Trust, and Bournemouth University in parallel to the Green Island study for this research (see Markey et al. 2002; Markey 2003; Figure 35 herein). The objectives were to date the structure and determine its form and function. A secure date was the primary objective as that would immediately disqualify some of the postulated functions listed above: it would also determine whether the structure could be considered a component of the Iron Age 'complex' of Poole Harbour.

The investigation determined that the 'causeway' was in fact two distinct structures leading from Green Island and the mainland at Ower Peninsula, which were interpreted as 'jetties' (Figure 37). A survey by probe and measured recording revealed that the two structures were on slightly different alignments so are unlikely to have formed one continuous 'causeway'. In addition, an investigation by divers of the channel between the two 'jetty' terminals revealed no structural evidence or any loose material.

The structures now lie under a metre of mud and silt in the intertidal zone, and where they project into South Deep the top surfaces are below the low water mark. However, in exceptional circumstances (the lowest spring tide combined with high atmospheric pressure), the water level falls sufficiently that the 'jetties' are revealed (Figure 36).

The southern 'jetty', running out from the mainland at Cleavel Point on the Ower Peninsula, was the object of major excavation in August 2001 (Markey et al. 2002). From that work, a more detailed study of the construction of the 'jetty' was possible. Timber piles (of oak (83%), birch (7%), willow and yew (each 5%), all *c*.200 – 250 mm diameter) had been driven vertically into the underlying natural clay to provide a framework to consolidate the structure. The piles had been worked to sharp points (Figure 38). Within and around the timber framework, the lower strata were of clay with intermingled horizontal brushwood lenses (mainly alder), again for consolidation. Above the clay was a layer of compacted coarse sand on top of which was a layer of dark, often black, rough-edged flint chunks. The whole structure was capped with a surface of creamy-white Purbeck marble (limestone) slabs that lay on the flint and tops of the vertical timber piles (Figure 39). In 2003, a small-scale excavation of the northern 'jetty' was undertaken. This revealed that the construction style was the same as the southern 'jetty'. No horizontal timbers were observed during these excavations, unlike those recorded in the Boy Scouts investigations. However, the divers have since made further examination of the eastern sides of the structures, and have recorded the ends of horizontal timbers that were visible extending out of the sides, and in places on the surface of the southern 'jetty' where the stone capping had been lost (M Markey, pers. comm.).

Survey revealed that the southern 'jetty' is at least 160 m long, and eight metres wide across its top surface. The northern 'jetty' (on the Green Island side of South Deep) is at least 55 m long, and again, eight metres wide (Figure 37). The northern edge of the 'jetty' terminates *c.*170 m from the current shore of Green Island. It is likely that the gap represents the amount of erosion from Green Island since the 'jetty' was in use: it would originally have terminated at the contemporary shore. This is the area of exposed sand cliff that experiences most erosion by wind and water. The gap between the two 'jetties' is *c.*70 m. No evidence has been found that the structures bridged the South Deep channel; indeed, the outer ends of the 'jetties', as observed by divers, appear shaped and finished, not truncated.

Samples of the oak timbers were removed during the 2001 investigation for cleaning, examination and dating. They were examined by Nigel Nayling (Nayling 2001), but unfortunately no match was possible with current dendrochronological curves. Smaller samples were removed from the outer sapwood of three oak timbers that had been excavated from near the inshore end of the southern 'jetty' and sent for radiocarbon dating (see Table 14). All the radiocarbon determinations were between 2080+/-60 BP (Beta 164887) and 2260+/-60 BP (Beta 164888), strongly suggesting a middle Iron Age date for the construction of the southern 'jetty'. In later excavations (2002 and 2003), four timber samples were removed from the outer end of the southern 'jetty' and three were removed from within the northern 'jetty'. The dates determined from the outer end of the southern 'jetty' very closely matched those from the timbers from the northern 'jetty', so confirming the contemporainity of the two structures (Figure 40). The complete suite of ten radiocarbon determinations from both 'jetties' matched each other closely and provided an overall range of 2080+/-60 BP (Beta 164887) – 2370+/-70 BP (Beta 182646) firmly in the middle Iron Age. However, these dates should be treated with some caution: as evident in Figure 40, there are several middle and late Iron Age points of coincidence between the samples dated. Combined with the known difficulties in determining radiocarbon dates from the Iron Age, the certainty of a middle Iron Age date for the structures is not proven, but used herein as a guide to their antiquity.

Therefore, working from an approximate date of *c.*2250-2000 yrs BP, it can be calculated that the 170 m of erosion of Green Island occurred at an average rate of *c.*0.075 m – *c.*0.085 m pa. This accords much more closely with Jarvis' calculations for Furzey Island erosion (1985b, 154) that equate to 0.0125 m – 0.05 m pa, than to May's (1969) suggestion of erosion at the rate of 0.35 m pa (see above).

Interpretation of the 'jetties' and application to assessments of former sea-levels

The function of the 'jetties' has been generally associated with that of quays, for vessels to tie up both at the ends of the structures, and along the sides as far as water level permitted (Figure 41). The 'jetties' currently lie under approximately two metres of water and silt at MHW. Excavation revealed the top level of the southern 'jetty' is at *c.*-0.89 mOD. Applying the freeboard for quays (Waddelove and Waddelove 1990) of 1.0 m, this would suggest a middle Iron Age HAT for Poole Harbour of -1.89 mOD. As outlined in section 7.2.1 above, late Iron Age HAT in Poole Harbour has been calculated at -1.0 mOD (Jarvis 1992). That would imply a significant rise in sea level of 0.89 m in the last quarter of the first millennium BC. Current HAT in Poole Harbour is 1.66 mOD, indicating a sea-level rise of *c.*3.55 m since the middle Iron Age. By the end of the first millennium BC, during the late Iron Age when excavation has shown both Green Island and Ower were in use, the top of the 'jetties' would have stood 110 mm above HAT. This is much below the operational margin of *c.*1.0 m for quays and 'jetties' (Waddelove and Waddelove 1990), although in all but the most extreme conditions the structures would have been sufficiently proud of the water line to be highly serviceable.

The comments and calculations above considered the interpretation of the structures as middle Iron Age 'jetties'. However, the evidence permits other explanations of the observed features, and an alternative interpretation is offered below (section 7.5.4).

Middle Iron Age water level in the harbour appears to have been much lower than the present, at *c.*-1.89 mOD (see above). At that level, the harbour would have been a network of streams, creeks, and channels as suggested by Jarvis (1992) and Furzey and Green Islands would have been one land mass ('South Island'), isolated from the mainland by South Deep which would still have been a permanently water bearing channel. However, a land link from Fitzworth might have been possible: this area would benefit from further survey (see below). If that land link did exist the question is raised of why the northern 'jetty' was required. Possible answers to that question are considered in section 7.5.4 below.

7.3.7 Bulbury Hill

Located just 4.5 km north-west of Poole Harbour (*c.*12 km from the harbour entrance), Bulbury is the first area of high ground (*c.*50 mOD) encountered near the harbour (Figure 95). It overlooks the valley of the Sherford River and the bank and ditch of a univallate hillfort enclose *c.*3.4 ha at its level summit. Its physical setting and proximity to the harbour matched the characteristics of the 'high ground enclosure' element of the nodal model (section 4.3.4 above). The present study considered whether the site could be directly related to Iron Age activity in Poole Harbour.

The river route passing Bulbury gave access to Lytchett Bay in the north of the harbour, alongside which the Roman road was constructed in the mid first century AD to connect Hamworthy and the harbour to the military camp at Lake (Field 1992 49-50). Passing south of Bulbury, overland routes, known from at least the medieval period, run through Organford and Wareham to the western and southern harbour areas.[41] Norman Field postulated that a branch of the Roman road led directly from Bulbury to Wareham (1992, 76; 99-100), and may have followed an earlier route.

Although the site was long known, it was first recorded in detail by Edward Cunnington (1884) who reported on a hoard of metal, ceramic and glass objects recovered from the camp in 1881; his account included a plan of the site (Figure 42). At that time, the eastern half of the site was "in the process of destruction by the plough" (*ibid*, 115): that process has since been completed with no upstanding evidence remaining in the field. All the objects were recovered from the western part of the hillfort at depths of two feet – three feet (*c.*0.61 m – 0.91 m). The assemblage included zoomorphic bronze figures,[42] decorated bronze fastenings and other fragments, bronze rings, an iron dagger handle, an iron bar, iron nails, glass beads, metal hammers, a quernstone, black pottery fragments, and, of much interest to this study, an iron anchor and chain (*ibid*, 115-7). Cunnington described the

[41] It is possible that those tracks were on similar routes to the overland connections used in earlier times as they formed the most direct routes across the heath between fording points (Field 1992).
[42] The bulbous eyes of an illustrated bronze bull (Cunnington 1884, Plate VI, object 2) are in a style similar to the curvaceous designs of other zoomorphic bronze figures and depictions found at Hengistbury Head (Bushe-Fox 1915, Plate XXIX, object 6) and Rose Ash (Fox 1961a), credited to the South Western metalworking tradition (see section 6.2.3).

anchor as "4 feet 6 inches long, 27 ½ inches from point to point of the fluke, the main stem varying from 2 to 3 inches in breadth, the links of the chain close to anchor 5 inches in diameter, the rest of the links about 2 inches" (*ibid*, 116). As Cunnington further commented, the nails, anchor and chain were "singularly illustrative of ... passages in the third book of Caesar's Commentaries, "De Bello Gallico", describing the Veneti, and their ships and naval power" (*ibid*, 118). The passage referred to is translated as: "The ships were made entirely of oak, to endure any violence and buffeting. The cross-pieces were beams a foot thick, fastened with iron nails as thick as a thumb. The anchors were attached by iron chains instead of cables" (*de Bello Gallico* III.13; translation Edwards 1917, 155).[43]

The metalwork assemblage from Bulbury was reassessed by Barry Cunliffe (1972). He matched the two bull figures with La Tène yoke attachments known from north-west Europe, and interpreted their function as rein guides (*ibid*, 295-6). Cunliffe also added other material, unpublished by Cunnington, that had been retrieved from the site, supposedly at the same time, and stored in the Dorset County Museum in Cunnington's name. That included part of a bronze mirror of Fox's type IIIA (Fox 1958, Figure 5) that has a distribution through south-west Britain (Cunliffe 1972, 296), predominantly at coastal sites. Also, fragments of bronze bowls similar to those recovered from Rose Ash (Fox 1961a), Youlton (Smith 1926) and Birdlip (Green 1949) were retrieved (Cunliffe 1972, 298).

The anchor and chain had been cleaned and conserved at Dorset County Museum since Cunnington's examination. Cunliffe recorded that the anchor was 1.44 m long and had large slag crevice flaws on the stem (1972, 300). The chain was 6.5 m long and consisted of 115 links. Cunliffe cited similar anchors from Roman contexts at Newcastle, near Blackfriars Bridge in London, at Villepy in France, and from a wreck off the French coast at La Ciotat: the closest parallel was the anchor from Pompeii (*ibid*). However, Cunliffe further stated that the use of iron anchors had "pre-Roman ancestry in the west" (*ibid*) and that "simple iron anchors may well have been in use in north-west Gaul as early as the middle of the first century B.C. and that they remained in use throughout the Roman period. Where within this bracket the Bulbury example belongs cannot be decided on typological

[43] By contrast, Greco-Roman anchors dated to the mid-end first millennium BC were generally fashioned of wood and attached by rope cables (see Boon 1977).

grounds alone, but bearing in mind the pre-conquest nature of the rest of the collection a date within the first 40 years of the first century AD would not seem unreasonable" (*ibid*, 302).

The problems in determining a date for some of the material and its diverse nature made it difficult to interpret the assemblage. Cunliffe (1972, 306) concluded that the non-ferrous objects suggested a male and a female burial, although no bones had been recorded from the site, whereas the iron objects constituted a smith's hoard of waste metal gathered for reforging. Recently, permission has been granted for analysis of the anchor to try to determine its date and composition (Parham pers. comm.). This might resolve whether the anchor does indeed relate to Iron Age activity at Poole Harbour.

The artefacts were all recovered in the process of drain cutting across the hill: there has been no recorded archaeological excavation at the hillfort site, now within the land holding of Wessex Water. The presence of the hillfort on high ground overlooking Poole Harbour, with material that originated in France and south-west Britain, is of relevance to the study of the harbour as a nodal complex and is further considered in section 7.5.3 below.

7.4 Primary research at Ower Peninsula and Green Island

The preceding section outlined what is known of the sites around Poole Harbour that are considered as components of the nodal model proposed in Chapter Four. In establishing this research scheme it was decided to undertake a programme of primary research at a sample of these sites, where access was permitted, to gather more data to relate to their Iron Age use. The sites selected for fieldwork investigations were the Ower Peninsula and Green Island, with parallel investigation of the 'Green Island causeway' (as outlined in 7.3.6 above and discussed in 7.5.4 below). Investigation of these sites would expand the understanding of their specific form and function in the Iron Age, as well as contribute to the overall assessment of Poole Harbour as a coastal node.

The fieldwork comprised three components: geophysical survey at Ower; auger survey between Green Island and Furzey Island; and excavation on Green Island that included three phases of test pit sampling followed by a further excavation and survey undertaken by 'Time Team'. Each fieldwork component is reported individually below.

7.4.1 Geophysical survey at Ower

The mainland site at Ower is a key component in the late Iron Age complex of southern Poole Harbour (Figure 31). Previous archaeological work there is outlined in 7.3.2 above. Ongoing investigation of the 'jetties' in South Deep (section 7.3.6 above) has determined the line of the structures in the tidal and intertidal zones, but not where the southern jetty meets the shore at Ower, nor any relationship (spatial or otherwise) with the known archaeology of the peninsula. The primary question that was unresolved by earlier excavation was the seaward extent of the settlement site (Woodward 1987a; Cox and Hearne 1991). As part of this case study, a geophysical survey of the littoral area was undertaken in order to address the outstanding questions.

The aim of the survey was to identify any subsurface remains of the southern 'jetty' as it ran to Cleavel Point and/or a track or route leading between it and the known area of settlement. In addition, to determine whether features could be detected past the edge of the known settlement area, it was proposed to investigate the intertidal area, beyond the limit of the 1979-81 survey (Woodward 1987a; Cox and Hearne 1991).

Three areas were surveyed in the current study using an FM36 fluxgate gradiometer, MS2 magnetic susceptibility meter and field coil, and an EM38b electromagnetometer (Figures 43 and 44). Each survey is detailed in Appendix Four, and the results are discussed below.

Area 1 (Figures 45, 46 and 47)

The orientation of the southern 'jetty' which leads from Cleavel Point into South Deep had been determined during earlier survey using probes, a total station, and the observations of divers (Figures 33 and 37). The position of the northern end of the structure is known in the deep water of South Deep, but the southern extent is not known as the 'jetty' is covered by increasingly deep muds through which it has not been possible to conduct a probe survey. Therefore, the known line of the 'jetty' was projected into the intertidal zone and explored as Area 1 of the geophysical survey.

Two instruments were used in this area, which had not previously been subject to survey by geophysical or other methods, with the aim to determine if the southern 'jetty' or track leading to it could be detected. Although both the FM36 and EM38b recorded anomalies in this area, these were attributed to natural variations in the saline mud and *spartina* beds. No archaeological features were detected. Several alternative conclusions could be drawn from these results:

- the 'jetty' did not extend this far inland but terminated closer to the water's edge, or
- the 'jetty' was constructed on a different orientation which was not covered in the survey area, or
- any remains of the 'jetty' or other features have been destroyed by erosion, or
- subsurface features are covered by mud of varying depths and *spartina* which masked the response and prevented detection by the survey instruments.

It is not possible to say which, if any, of the above conclusions is most likely, although it is less likely that the structure would have eroded completely away at this inland end since it survived in the open water of South Deep.

Area 2 (Figures 48, 49 and 50)

The geophysical survey undertaken in 1979-81 (Woodward 1987a; Cox and Hearne 1991) revealed that the late Iron Age settlement on Ower covered an area of at least 10 ha (Woodward 1987a, 44). The northern extent of the settlement, closest to the harbour shore, was not determined but a limited magnetic scan and auger survey indicated features might exist in the intertidal zone (*ibid*, 47).

A transect running from the field into the intertidal zone was surveyed using two instruments (FM36 and EM38b), and both detected anomalies in the intertidal zone. Anomaly **f** (FM36) is interpreted as a ditch boundary with a right angled corner and anomaly **g** (EM38b) is interpreted as the magnetically enhanced and highly conductive interior of that enclosure. These results strongly suggest that the activity areas at Ower do indeed extend into what is now the intertidal zone and that evidence of that activity remains buried under the mud. It is not possible to determine from the geophysical survey results a date for the postulated enclosure but the alignment of the ditch conforms to the general orientation of enclosures detected in the 1979-81 survey which are considered to be components of the late Iron Age settlement on Ower. This should be investigated by future excavation.

Area 3 (Figures 51 and 52)

The geophysical survey conducted in 1979-81 used a fluxgate gradiometer usually with reading intervals and traverses both of 1.0 m. However, due to time constraints, the north-east area of the survey was conducted with traverses of 2.0 m (Woodward 1987a, 47) which greatly reduced the resolution and detection capability of the survey. Therefore part of that area was resurveyed in this study using an FM36 fluxgate gradiometer with a reading interval of 0.5 m and traverses of 1.0 m. The aim was to determine if the higher resolution of the current survey could detect further anomalies and add to the detail determined by the 1979-81 survey.

The current survey detected all the anomalies discovered by the earlier survey (Figures 32 and 33), including the portion of an enclosure ditch (anomaly **i**) and discrete features which are interpreted as pits (anomaly **l**). The higher resolution also revealed other anomalies (Figure 51). As a result, it is possible to eliminate one of the features previously identified as part of the enclosure system from consideration of the late Iron Age settlement. Anomaly **m** is now interpreted as one of a set of parallel cultivation marks (anomaly **n**) which relate to more recent land use (probably associated with deep ploughing of the field in the 1970s (D Purdie, pers. comm.)).

Area 3 was also surveyed with an MS2 magnetic susceptibility meter (Figure 52). The low responses in the east of the survey area reflect the loss of topsoil due to erosion and trampling by people and animals at the point of access to the intertidal zone. The higher responses in the west coincide with anomaly **l** detected with the gradiometer and interpreted as a series of pits. The higher magnetic susceptibility readings suggest that, if the anomalies are pits, they are filled with magnetically enhanced, 'rich' soils.

In summary, the reasons why the southern 'jetty' could not be detected in the area surveyed have posed further questions which can be approached in future work at Ower by geophysical and probe surveys. The results from Area 2, where anomalies were detected in the intertidal zone, have been interpreted as the remains of a ditched enclosure. That suggests the area of occupation in the Iron Age extends beyond the current HWM. Again, this can be further investigated by additional survey and perhaps sample excavation. The results from Area 3 illustrate the benefit of using close interval survey resolution when possible as the detail provided has enabled new interpretations of anomalies.

7.4.2 Channel bottom survey between Green Island and Furzey Island

Sea level in Poole Harbour is considered to have been lower in the Iron Age than today (see section 7.2.1 above). The rise in sea level since that time, combined with land erosion, has altered the shape and form of the harbour coast and islands. It has been suggested (Cox and Hearne 1991, Figure 91) that Green Island and Furzey Island were one landmass (referred to here as 'South Island') in the Iron Age. This was supported by the alignment of truncated enclosure ditches on Furzey that, if their line is extended, would form an enclosure system covering Green Island as well. In order to test the single landmass theory, an auger survey of subsurface deposits was conducted in the channel bed between the two islands with the aim of retrieving evidence of the former land surface.

One of the lowest Poole Harbour tides of 2002, at 0.16 mOD, occurred at 0640 hours on 12 August. At that level the channel between Green and Furzey Islands had run dry and a walk over survey was conducted between the two islands. With a window of less than an hour of safe working conditions, the nature of the survey was limited to visual scan and use of a 1.0 m hand auger. The scan showed that the surface of the harbour channel between the two islands was not heavily silted but consisted of medium-coarse gravels with stonier patches within a sand matrix. Auger samples revealed isolated lenses of cream/grey clay within an otherwise undifferentiated sand/gravel matrix, with 'bedrock' white sand at *c.*200 – 300 mm depth.

The results suggested that any former dry land surface in that area had been completely eroded away. It is possible that this was a low-lying 'valley' area between the rising ground that now forms the two islands (Figure 30). As sea levels rose, the area flooded and, with the force of water flow through the subsequent channel, land remains were washed away. The current surface of Furzey and Green Islands consists of thin soil above sand: if the channel area was similar it would not easily resist water erosion.

7.4.3 Fieldwork on Green Island

7.4.3.1 Aim and rationale

Iron Age and Romano-British material has been noted on Green Island from previous small-scale investigation and casual finds (Calkin 1955, 53-4; Farrar 1963a; 1967; Bromby 1969). Contemporary activity on Furzey Island and at Ower has been linked with a port functioning within the international trade network (see above). Although the collection of the material from Green Island had not been recorded in detail it did provide many tantalizing hints of possible rare industrial activity and potential links with the overseas trading port. The objective of the fieldwork reported here was to build on the earlier observations to provide an overview of activity on the island at that time and link with ongoing research into the 'Green Island causeway' and the study of nodal sites on the English Channel coast that forms the basis of this PhD thesis.

An archaeological evaluation was conducted in the form of a test pit survey. The aim was to identify concentrations of Iron Age/Romano-British material in order to explore industrial and/or settlement areas within the island. In addition, specific objectives were to:

- determine whether the areas of potential archaeological interest identified by Smith, Calkin, and Bromby (see Farrar 1964; 1967) were correct or if archaeological activity could be identified elsewhere in the island
- establish whether lathe-working and hand-working of shale (see section 7.4.3.7 below) were conducted on Green Island in the pre-Roman Iron Age, as suggested by Calkin (1955)
- characterise the nature of Iron Age use of Green Island in order to determine possible reasons for the construction of the northern 'jetty'.

The main focus of the Green Island fieldwork concentrated on 32 1.0 m x 1.0 m test pits excavated throughout the island (Figure 34). This was undertaken in short seasons over three years by a volunteer workforce from local archaeological societies, directed by the writer.

7.4.3.2 Location, geology and topography

Green Island lies in the southern part of Poole Harbour, centred on SZ00558650, in Corfe Castle parish, Dorset (Figure 31). It is situated *c.*0.4 km north-east of Cleavel

Point and *c.*3.5 km south of Poole. It is the landward of a 'chain' of three islands – Furzey Island and Brownsea Island being *c.*0.15 km and 0.85 km north-east respectively. It is in tidal water with the navigable channel of South Deep running around the south of the island. The majority of the island is included in the English Nature designated Poole Harbour biological SSSI.

The island sits on Bagshot Beds, surrounded by accumulated alluvial material. Sand cliffs face the west shore (Figure 53). The highest point is on top of the cliff in the north-west corner (*c.*20 mOD) from which the island slopes away to the east and south. The northern, eastern, and southern extremities of the island are characterized by *spartina* covered flats. The inner island has heath-like clearings amongst tree and rhododendron growth. The area of Green Island that lies above the HWM is *c.* two hectares.

In common with the other islands in Poole Harbour, Green Island has been densely vegetated by rhododendron growth, particularly in the north and west of the island. That, together with further tree and shrub cover, meant that geophysical survey was not possible, and use of the GPS was limited to those areas with a thinner tree canopy. In recent years, the rise of land in the north-west of the island had been machine cleared of the rhododendrons as part of a planned clearance project by English Nature. Unfortunately, English Nature's stripping method created much ground disturbance and the subsequent denuding of thin, sandy soils led to some amount of soil slip down the slope. These factors had to be considered when interpreting the results of the test pit surveys in that area.

7.4.3.3 Methodology

A grid of 50 m x 50 m squares directly linked to the OS national grid was planned over Green Island for the test pit survey (Wilkes 2001). However, it quickly became apparent that the density of the vegetation cover meant that a regular grid arrangement could not be maintained. Instead, a 'best fit' pattern was applied, with each test pit located as close to its planned location as the terrain and vegetation permitted (Figure 34). As the island is within the Poole Harbour SSSI, permission was sought from English Nature for the work to proceed. This was granted with the conditions that excavation avoided areas supporting heather plants; and the pits were backfilled in such a way as to restore, as far as is possible, the original soil profile. The work programme was structured to comply with those two conditions. Standard evaluation practice was employed in line with the guidelines and standards issued by the Institute of Field Archaeologists (IFA 1999; 2001). A Health and Safety Risk Assessment was conducted following Bournemouth University procedures in advance of work commencing.

The positions of the test pits were located in advance of the fieldwork utilising a Leica System 500 differential GPS where possible, and a Sokkia total station in all other areas. All surveys were conducted from either of two pairs of permapegs installed on the island for that purpose (Table 15). These had been positioned from a pair of pegs located at Cleavel Point that in turn had been positioned from the triangulation pillar at Fitzworth. All points remain *in situ* for future work.

All the test pits were excavated in an identical manner. Turf was removed where necessary and the pits were dug in 100 mm spits. All material was sieved through 10 mm mesh and any artefacts retained. By this method, a sample of the three-dimensional distribution of material across the island could be determined. In addition, soil samples were taken from each spit of each test pit and analysed for magnetic susceptibility in the Bournemouth University laboratories. Each pit was recorded on a standard ARTHUR test pit record sheet and any features were recorded on a feature sheet (see Darvill 2000). The photographic record comprised 35 mm colour transparencies, 35 mm monochrome prints, and digital images. After excavation and recording, each pit was backfilled with spit material reinstated in reverse order to the excavation in order to retain the original soil profile as closely as possible. The results of this work and that of the further investigation in 2003 are discussed together below.

7.4.3.4 Further investigation

In June 2003, the author was approached by VideoText Communication who wished to make a 'Time Team' television programme on the archaeology of Green Island. The land owner granted permission for a three day excavation in July 2003 (VideoText Communication 2003; Channel Four 2004). The work undertaken was planned to conform to the methodology and objectives established for this case study and the results would be incorporated into the ongoing research into Green Island and Poole Harbour.

The excavation strategy was developed from the results of the test pit survey with certain expectations for each area of investigation. Five test pits and three trenches were excavated (see Figure 34) and all expectations were met. All but one of the locations were excavated with the writer's agreement (the unapproved pit proved to be an erroneous interpretation of the geophysical survey). Geophysical survey (magnetometry and ground penetrating radar) was conducted at discrete locations (Figure 34) (GSB Prospection 2003). All finds were processed by Wessex Archaeology but, at the time of the submission of this thesis, have not been made available to the writer for consideration against the test pit material. A summary stratigraphic report was prepared by Wessex Archaeology (2003b) and disseminated in January 2004.

The majority of the imported pottery recorded in the test pit survey came from TP20 near the centre of the island. TP20 also contained much local pottery and, in total, provided 16.5% of the pottery recovered from the test pits. This area was selected as a target for further investigation with a larger trench (Time Team Trench 1) to determine why so much pottery should be concentrated in one place. The excavation uncovered a curving line of stones set back against the hill slope, interpreted as a wall (Figure 54). Down slope of the wall were more finds of Iron Age pottery, shale and bone, including human skull fragments. An early (first century AD) Roman bronze trumpet brooch fragment was recovered with Roman pottery from above the wall (see Wessex Archaeology 2003b, 17). As yet, it is not possible to state whether the wall was part of a building or perhaps a revetment to define and protect an activity area from the hill slope. Further investigation is planned for this site in the future.

The high interest of the feature and finds in TP13 from the 2003 survey (see below) made the location a target for another of the trenches excavated by Time Team (Trench 2). This revealed a collapsed smithing hearth, with associated bellows pits and anvil stone. The clay revealed in the test pit was part of a large dump of material deposited to be on hand to repair/patch the hearth during operation. The hearth was declared to be Iron Age (R Doonan, pers. comm.) due to its form, slag characteristics, and association with Iron Age pottery.

The geophysical survey suggested that part of an enclosure system might survive north of Trench 2 (GSB Prospection 2003). Excavation in that area revealed two parallel ditch cuts that contained late Iron Age pottery (Wessex Archaeology 2003b, 12; see Table 11). Unfortunately only a small portion of the ditches was revealed so it was not possible to determine whether they formed part of an enclosure or system of enclosures. The location was of particular interest as it was in the part of Green Island that lies directly opposite the truncated ditches on Furzey Island.

7.4.3.5 Test pit finds summary

From over 18 tonnes of soil excavated and sieved during the three phases of work, over a thousand ceramic sherds, more than 150 worked flints, a dozen pieces of metal slag, and more than 250 shale pieces were recovered.

Pottery

The pottery recovered was mainly of late Iron Age/early Roman date, with some middle Iron Age sherds. The earliest was one unstratified Bronze Age sherd, indicative of the antiquity of the settlement. Several medieval pieces were recovered from TP31, together with contemporary tile and slate. The majority of the Iron Age pottery was of the local Poole Harbour fabric, but with a proportion of imports from other regions and abroad (Table 13).

No complete vessels were recovered. The potsherds were generally small (mean *c.*7 g) and mostly in poor condition. The re-use of local clay sources at different periods from the Iron Age to much more recent times, combined with the poor state of the majority of the pieces, made it difficult to date particular sherds. However, sufficient diagnostic forms were recovered for the general character of the assemblage to be determined. The predominance of rims and bases in the assemblage was probably due to taphonomic factors and the better survival of more robust pot elements in the soil. It is likely that the deposits across the island were mobile; combined with the acidic nature of the soils this would account for the poor condition of the potsherds and survival in small fragments of more robust elements.

The majority of the identifiable pottery (approximately 85% of the total number of sherds recovered) consisted of late Iron Age Durotrigian forms in local Poole/Wareham fabrics (see Brailsford 1958; Williams 1977), particularly bead rim vessels. These were current in the first centuries BC and AD, and have been recovered from sites throughout the Durotrigian region, including Hengistbury Head, Ower, Furzey Island, and Maiden Castle.

Non-local sherds accounted for *c.* 2.4% of the total assemblage (Table 13). The non-local wares included granite-derived fabrics of coarse, black material, most exhibiting micaceous inclusions. Sources of these fabrics are known in south-west Britain and north-west France (B Cunliffe, pers. comm.). Samian and Arretine finewares were also recovered, although no decoration or stamps were present on the sherds in the assemblage. In addition, copies of continental forms in local fabrics suggested a familiarity with a wider range of pottery types than actually recovered. Amphora sherds of Dressel IA and possibly Dressel 2-4 were also present.

Worked flint

Much of the worked flint recovered from Green Island was in the form of undiagnostic flakes. There was also a quantity of worked flints of forms which are known to be used in shale working (see Calkin 1955; Cox and Woodward 1987; and below). One Mesolithic blade was found on the ground surface (in the area of rhododendron clearance) near TP23.

Shale

Approximately two kilograms of shale were recovered. The assemblage included blanks, cores, waste flakes, and armlet fragments which had broken in antiquity, possibly during manufacture. No complete armlets were found. The cores were mainly of Calkin's (1955) Class A, one of the earliest types produced on a lathe from the first century BC. Other cores were of Classes C and D. No Class B cores were recovered.

Metalwork

The metallurgical evidence from Green Island was predominantly in the form of iron slag from both smelting and smithing processes. TP17 contained the majority of the slag pieces. This was adjacent to TP23, at the bottom of the main hill slope, which also contained slag and much pottery. However, of particular interest was TP13. This revealed a clay dump and, at *c.*1.0 m depth, the base of a metallurgical crucible (Figure 55). The area was further investigated by Time Team Trench 2 (see above).

The amount of slag recovered from test pit sampling (*c.*250 g) is high (R Doonan pers. comm.) and suggests metal working on an 'industrial scale' on the island (R Doonan pers. comm.). It is possible that the products of the manufacturing process were prepared for export. One iron artefact, in three pieces, was recovered from approximately *c.*1.0 m depth in TP23 (Figure 56). This was fragile and heavily corroded. It had the appearance of a curved blade, like a sickle, but despite x-ray examination, no detail to determine its original form or function was produced.

Bone and other material

The majority of the animal bone was recovered from the waterlogged level of TP24. The acidic nature of the soil elsewhere probably accounted for the low survival rate of bone on the island. The animal bone assemblage contained duck, pig and calf and most pieces displayed butchery marks. Although this was not a large collection of material, the range of species is typical of Iron Age deposits related to food consumption (E Hambleton, pers. comm.).

Two copper alloy coins were recovered from TP31[44]: Coin 1 (CCI 03.0843; VA 1290; Mack 318; early first century AD) was approximately 0.3-0.4 m deep; Coin 2 (CCI 03.0844; VA 1235; *c.*15% silver content; late first century BC/early first century AD) was approximately 0.7-0.8 m deep. These were identified by Philip de Jersey as Durotrigian bronze staters of the first centuries BC/AD: both had been cut across the spike, probably to test for metal quality (P de Jersey, pers. comm.).

7.4.3.6 Material distributions determined by the test pit survey

32 test pits were excavated in 11 days, spread over three years (Table 16). 23 pits contained diagnostic material (Table 17, also see Table 13), although those on the higher ground to the west contained much less material than the pits in the central and eastern areas. The results are plotted as percentage density distributions based on mass (Figure 57).

The test pit survey provided excellent results that allowed material distributions to be plotted of the island (Figure 57). The plots clearly show two 'hot spots' of activity based on the higher densities of Iron Age artefacts recovered from those locations. The material was classified into five types: pottery, flint, shale, slag, and bone and other (Table 17).

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[44] The area of TP31 was of particular interest due to its topography. A small "knoll" sat slightly in the lee of the hillside. Without the current dense rhododendron cover across the south of the island, this position would have afforded direct and unobscured views south-east across to the harbour entrance and South Deep approaches, and east to Furzey Island. This pit also contained the only medieval material recovered from the test pit survey, including high quality glazed tile and Delabole roof slate (identified by I Hewitt). It is proposed to conduct further investigation, including geophysical survey, in this area when vegetation clearance permits.

The material distributions determined by the test pit survey clearly showed two activity zones on Green Island – one in the north, and the other towards the centre of the island. (The bone and other material were concentrated in the east of the island where TP24 had probably cut into a waterlogged rubbish midden.) There is a distinct coincidence between the high density areas of the different materials. It is interesting to note that the northern 'hot spot' is in the immediate vicinity of Smith and Bromby's pits *b* and *h*, and the southern hotspot is near pit *l* (Farrar 1967, 121; Figure 34). Farrar recommended that the areas of exactly those three pits would benefit from further investigation (*ibid*). It is a point of note that the areas of pits *a*, *c*, *d*, *f*, *g* and *m* have been lost to erosion: the locations of pits *c*, *d*, *f* and *g* are now in the salt marsh that fringes the island; the area of pit *m* was lost to cliff fall. Pit *m* had contained Romano-British sherds and shale cores (*ibid*) on the western high ground of the island. None of the pits excavated on the high ground in this project yielded more than a few items. It is likely that any material from the high ground has been lost to erosion, or moved with soil slip following denudation by removal of the rhododendrons in that area.

7.4.3.7 Finds from Green Island and fieldwork conclusions

The fieldwork on Green Island has provided an indication of the range and distribution of late Iron Age material and activities. The evidence suggests that the island was involved in manufacturing shale armlets and objects made of iron, possibly for export, and that it received imports from other areas of Britain and abroad. The manufacturing activity was a key function in the port complex of Poole Harbour.

The identification of south-western wares hints at coastal connections with that region. Similarly, the continental wares attest to the maritime links between Poole and north-west France. The regional and continental imports were dated mainly to the first centuries BC/AD, the same date as the majority of local wares. The number of imported potsherds recovered was not extensive, but was proportionally greater than the assemblage from neighbouring Furzey Island (see Table 13).

Shale was used in later prehistory and the Roman period to produce other items including cups, model representations, and furniture (e.g. Farway cup (Fox 1948), Colliton Park table leg (Calkin 1972), Caergwyrle boat (Green 1985)). However, the cores and waste from Green Island so far show only the manufacture of armlets.

Experimental work by Dennis Sloper (1981; 1983; and manuscript papers in D Sloper archive held by the Avon Valley Archaeological Society) suggested armlets could be fashioned from the extracted core of shale cups, but this has yet to be confirmed. Sloper concluded from his experiments that an experienced shale worker, using flint-tipped tools and a pole-lathe, could produce an armlet from a roughly fashioned block of shale in approximately 1.5 hours, or approximately six armlets in a day (Sloper 1980). The amount of waste material recovered from Green Island suggests that the manufacture of armlets was undertaken on a large scale and would represent the investment of many hundreds of hours of labour.

The shale is of particular interest as the finds suggest both hand cutting and lathe-turning processes were employed to produce armlets in the late Iron Age. Calkin (1955) had suggested that Green Island was one of a rare group of sites where lathe-turning occurred at that time and finds from the test pits confirmed that. Unlike Hengistbury Head, where shale waste was recovered (section 6.2.3 above), Green Island also produced the flint tools that were used to work the material on the lathe.

It is probable that some at least of the armlets were produced for export away from the harbour area. Shale armlets have been found at sites throughout southern and central Britain and in north-west France (J Collis, pers. comm.). Their position in funerary contexts has provided the best evidence for how the armlets were worn (Table 18). The armlet on the skeleton of an adult male at Tollard Royal was too small to fit over an adult hand so was probably worn permanently since youth or childhood. The example, of similar diameter, from Winnall Down, supports that proposition as it was found on the arm of a youth. If shale armlets were worn in such a way, it is likely that they were imbued with social significance. The selection of Green Island for the production of these apparently socially significant items may mirror the selection of places for metal working (R Doonan, pers. comm.) and be a futher illustration of its special or liminal status. On the other hand, although current evidence supports the practice of large scale production of shale armlets it can be argued that it was carried out on the island for no other reason than it was a secure site on which to store the raw material and produce goods ready to enter the economic system.

The proposition of a physical link with Furzey Island has been strengthened by the results of the coring assessment (section 7.4.2 above). The identification of a probable enclosure ditch in Trench 3, in the area closest to Furzey, suggests that the enclosure pattern could have continued across the combined land mass of 'South Island' (Figure 30).

The results of the excavations have shown that Green Island was the location of large scale manufacturing processes, as well as a place where imported finewares and products were consumed. The material recovered from Green Island, in the main, dates from *c.*150 BC – AD 50. That suggests it was in use at the same time as the major phase of activity on Furzey Island, but that the use of Green Island continued beyond Furzey's abandonment *c.*20 BC and whilst the site at Ower was operational (from *c.*20 BC to mid/late first century AD). Whatever made Furzey unviable as a site did not affect Green Island. It has been suggested (see 7.3.4 above) that rising sea-level was responsible for the abandonment of Furzey. It certainly appears that the activities undertaken there were relocated to the mainland site. However, the continued use of Green Island strongly suggests the need to retain an off-shore area within the harbour. The role of the islands within the complex of elements is considered in 7.5.2 below.

7.5 Discussion: the Iron Age complex of Poole Harbour

7.5.1 The nodal elements of Poole Harbour

It has been shown that Poole Harbour contained a number of the elements associated with an Iron Age coastal node complex as defined in this study:

- it was located at a convenient point along the English Channel coast, on known routes and with favourable (double) tides for frequent access and beaching
- the tidal harbour provided access to inland waterway routes of the rivers Piddle, Frome and Sherford
- the harbour entrance, between two large sand banks, was identifiable to vessels at sea as a break in the low cliff line
- the harbour offered shelter from winds, including westerlies
- it was a safe haven with good anchoring/mooring locations

- formal waterside facilities of some sort are suggested by the 'Green Island causeway' (but see section 7.5.4 below)
- there was capacity on the mainland and on the islands for securely storing imports and exports and to accommodate people and pack animals
- Iron Age material (locally produced and imported from other regions of Britain and from the continent) has been found on the mainland and the islands
- evidence of manufacturing activity (shale working, iron working, and pottery production) has been recorded on the islands and at mainland sites around the harbour
- Bulbury Hill, *c.* five kilometres north of the harbour, is suggested as the 'high ground element' in the nodal complex.

The resources of the harbour and bay, links with communities in the hinterland, and manufacture of items for trade/exchange would have sustained harbour settlements in an agriculturally poor area. The wide extent of the trade links is attested by finds from the harbour sites of imports from south-west Britain and north-west Europe, as well as finds of Poole Harbour goods (pottery and shale) at sites in Britain and abroad (J Collis, pers. comm.; Allen and Fulford 1996; Holbrook 2001). If the assemblages from all the Poole Harbour sites (Furzey Island, Green Island and Ower Peninsula) are combined (Table 13), the proportions are very similar to those of the imports from Hengistbury Head. This suggests that the scale of continental trade at both Hengistbury Head and Poole Harbour was similar. (The possible relationship between Poole Harbour and Hengistbury Head is discussed further in section 9.4.2 below.) The scale of the manufacturing processes in and around Poole Harbour suggests that it was an area of dispersed industrial sites, connected by the harbour and riverine waterways, and operating as a port to receive raw materials and imports, and to distribute and export the manufactured output.

7.5.2 Southern Poole Harbour

The south of the harbour appears to have been the focus of activity in the mid-late Iron Age. From that time, settlement and manufacturing evidence has been recovered from Furzey and Green Islands, with later Iron Age evidence on the mainland at Ower. This area of the harbour littoral probably developed as the focus as it is close enough to the harbour entrance to see and be seen by shipping, is on the route of the main South Deep channel, yet is sheltered from all directions. In addition, the presence in this area of the island group would have contributed the elements of safety, security, and defined island spaces to the complex.

The advantageous natural features of the southern harbour also applied to Goathorn Point (Figures 28 and 31): the land is sheltered and of the same character as at Ower, and the South Deep channel runs directly past the end of the Point which would have obviated the requirement for a long, complex jetty as at Ower. This area has not been archaeologically investigated but casual finds of Iron Age pottery have been made on the beach shore of the Point (A. Bromby, pers. comm.). Based on physical characteristics at least, Goathorn might appear to be the more obvious choice for a settlement/port location and the most practical position for a single jetty to serve inward and outward bound vessels. However, if Green Island and Furzey Island were an important element in the complex, it is true that access from Goathorn would be much less straightforward than from Ower. Furthermore, the 'jetties' which – whatever their function (see below) – run from Ower and Green Island, are located at the narrowest crossing point of South Deep which may also have reduced the significance of Goathorn in the late Iron Age. However, in the absence of field investigation, this point cannot be further explored at present.

Evidence collected to date suggests that the mid-late Iron Age nodal focus was on Green and Furzey Islands, with a shift in the later Iron Age to Ower when activity continued on Green Island, but not on Furzey. It is possible though that Ower was always the focus, but as yet any earlier evidence required to consider this has not been recovered. The presence of the southern 'jetty', dated to the middle-late Iron Age, would strongly suggest contemporary activity at Ower.

The evidence from Green Island and Furzey Island suggests they were the sites for manufacturing goods for export. Significant amounts of shale waste were recovered with the flint tools for working the shale, but no finished goods have been found. The completed items, armlets and possibly cups and urns, would have been shipped out to other sites and areas. Similarly, ceramic output from Poole Harbour has been recovered from sites throughout the south of England (e.g. Seaton and Sidmouth – see Allen and Fulford 1996).

Cox's excavations on Furzey (1985; Cox 1988) revealed enclosures, probably to contain stock and for settlement. Livestock would have been part of the domestic economy, but would also have provided raw materials for animal-derived products which could have formed part of the Poole Harbour exports. Following the excavations on Green Island, it is possible tentatively to suggest similar enclosures there as a continuation of the layout on Furzey as it has been suggested above that during the Iron Age Green and Furzey Islands formed one island landmass ('South Island') at the terminal of the northern 'jetty'.

The rise in sea level at the end of the Iron Age, combined with continued erosion, made Furzey less accessible and it became a discrete land mass. No evidence has been recovered from Furzey Island after the late first century BC until the post-medieval period, but at the end of the first century BC there was much activity at Ower with a planned settlement layout and subsequent trade, including international interactions, pottery and shale manufacture, and possibly salt production. It would appear that Ower may have taken over the functions that were previously located on Furzey. Green Island continued to operate alongside Ower as finds, albeit in decreasing numbers, continue into the third century AD. By that time, Ower was also in decline and the main Poole Harbour focus had shifted to the north, to Hamworthy.

7.5.3 The Poole Harbour hinterland

The harbour in the Iron Age was fringed by open heathland through which ran the rivers Corfe, Frome, Piddle (Trent) and Sherford (Scaife 1991). Clay and timber resources were available from the heath, as well as areas suitable for salt production and animal grazing. A number of Iron Age sites have been identified from the littoral and inner heath which were linked with the harbour by the riverine and overland routes to its shores. The investigated sites are Bestwall Quarry, Bulbury Hill, 'East of Corfe River'. Fitzworth Point (see 7.3.2 above), Slepe, and 'West of Corfe River' (Figures 28, 31 and 98).

The site at Bestwall Quarry has been investigated since the mid 1990s and has revealed activity ranging from the Bronze Age to post-Roman periods, with most of the evidence being related to Romano-British pottery production (Ladle 1996; 2003). The Iron Age use of the site, that is conveniently located at Swineham Point where the rivers Frome and Piddle flow into the harbour, was also concerned with large-scale pottery production, making use of the local clays (*ibid*).

Approximately six kilometres west of Swineham Point, along the river Piddle, a shaped piece of wood, dated to the Bronze Age, was recovered from under 1.0 m of peat. The implement was interpreted as a 'laundry beater' or boat paddle (Bryant and Horner 1990, 38; 47). Close to the find spot was a platform of logs (species not identified) that was interpreted as a landing stage (*ibid*, 47). If the interpretations are correct, the preserved wood remains are clear evidence of the use of the riverine route to/from the harbour in prehistory.

The Corfe river flows from a spring high on the Purbeck ridge and its route passes through the only gap in the ridge, making it particularly suitable to follow for access to the Purbeck high ground. It flows into the harbour at Wych Lake. At the point where the Corfe river meets the Creech tributary, just one kilometre from the shore of the harbour, are two Iron Age sites – known as East of Corfe River and West of Corfe River. Excavation of the western site revealed "the site was primarily or purely of industrial function" (Cox and Hearne 1991, 69) with evidence of large-scale processes of shale working, iron working, salt production, and pre-Roman conquest pottery production (*ibid*, 65-70). The eastern site covered a larger area and provided the settlement focus as well as extensive agricultural and industrial activity (*ibid*, 27-46). As on the other side of the river, those activities included salt production and shale working, and possibly pottery manufacture and iron working. The full extent of the Iron Age settlement is not known, but it was considered "comparable in size to that at Ower Peninsula" (*ibid*, 27), if not larger. It was suggested that both the East of Corfe River and Ower Peninsula sites were "implanted" with a pre-planned layout of enclosures on a large-scale (*ibid*, 46). The location of the east and west river sites, at a point where two water courses meet to flow into the harbour, is similar to that at Bestwall.

The site at Slepe has not been excavated, but was recognised by Peter Cox on an aerial photograph taken on 12 July 1989 as part of BP's geological exploration of the area of reclaimed heathland (BP photographic archive reference 8763, 8764; see Cox and Hearne 1991, 81). Parchmarks were visible on the photograph that clearly showed two superimposed rectilinear enclosures and a series of liner, curvilinear and sub-circular anomalies, mostly lying within the larger enclosure. The morphology and dimensions of the enclosures were judged to match those of Iron Age enclosures at Ower Peninsula and East of Corfe River (*ibid*). It was concluded that the "intensity of internal features associated with the enclosures indicates that it is likely to represent a focus of settlement activity" (*ibid*).

A major element in the proposed complex of the Poole Harbour hinterland is Bulbury Hill. As a defended high ground enclosure, this functioned as perhaps a further control point at some remove from the node (as proposed for the relationship between Saint Catherine's Hill and Hengistbury Head). There is no high ground in the immediate vicinity of the harbour until the hill on which Bulbury was constructed: it is the first possible point for a high ground enclosure and affords views across the back of the harbour. The link with activity in the harbour is strengthened by the finds made there (see section 7.3.7). The iron anchor and chain are obviously associated with maritime activity. The anchor stem was flawed and, in use, would have needed to be replaced once the flaw became apparent. If that was the case, it is possible that it was removed from aboard ship at the port of Poole Harbour, from where the heavy objects were transported the short distance to Bulbury and deposited in what has been interpreted as a smith's hoard (Cunliffe 1972) for future reworking. However it is possible that, rather than part of a smith's hoard, the deposition of items may have been non-utilitarian, emphasising the links between Poole Harbour and this high ground enclosure site.

Other Iron Age artefacts recovered from Bulbury were of types which typically had distributions in north-west France and south-west Britain, exactly the areas of contact demonstrated as maritime links for Poole Harbour. The metalwork and other goods travelled the same routes into the harbour as the pottery and shale items followed as exports. The recovery of those items from the hillfort site indicates the link between Bulbury and the maritime activity in Poole Harbour.

7.5.4 Jetties and 'control points'

A particularly interesting element of the nodal complex at Poole Harbour is presented by the structures known as the Green Island 'jetties' (7.3.6 above). The archaeological interest of Green Island is heightened by the early date and complex construction of the 'jetties' in South Deep. One 'jetty' from the mainland would have sufficed to offer a mooring/cargo-handling point and fulfil the port function. The existence of the northern 'jetty' would suggest that the role of Green Island in the nodal operations was of great importance, since simple access could have been facilitated by local boat working to a much less complex 'jetty' or even a hard/beaching point. If these are jetties for boat-loading/unloading purposes, something on Green Island must have warranted the investment of time, labour and resources to construct the northern 'jetty'. It was in order to explore this theory that the fieldwork investigations were undertaken on the Island (see 7.4.4 above), that concluded it was involved in the manufacture of shale armlets and iron-working processes.

One difficulty with the interpretation of the structures is the current lack of dendrochronological dates from the timbers. As outlined in section 7.3.6 above, the radiocarbon determinations show several possible dates in the mid-late Iron Age (Figure 40). If a later match is accepted, the moles could comfortably be given a late Iron Age date, contemporary with the activity on Green Island and at Ower.

The existing date determined for the 'jetties' is significant as it suggests they were contemporary with activity on Furzey and Green Islands, but they predate any evidence as yet recovered from the mainland site at Ower which raises questions of its own. The establishment of the 'planned settlement' there was dated to *c.*20 BC (Woodward 1987; Cox and Hearne 1991). However, if the middle Iron Age date of the 'jetties' is accepted, it would strongly suggest that some contemporary activity must have been taking place at Ower. It is possible that, in laying out and constructing the first century BC planned settlement there, all traces of earlier occupation were obscured or destroyed. Alternatively, the sample excavated was limited to the pipeline route that may not have included areas of earlier activity; it was perhaps over simple to extrapolate dates from the excavated features to others known only, so far, from geophysical survey: some of them may indeed be earlier. As a result of these considerations, further survey and investigation are now planned at Ower.

As discussed above, the two submerged features in South Deep have been interpreted as middle Iron Age 'jetties', serving vessels associated with international trade (Markey et al. 2002; Markey 2003). However, an alternative interpretation is that the features were rather designed to function as control points at the most topographically suitable location. This control could either have been physical or symbolic or an amalgam of the two. The location of the two structures between Green Island and Ower is at the narrowest crossing of South Deep. The channel at this point varies between *c.*90 m wide (LWM) and *c.*200 m wide (HWM); the 'jetties', extending into the channel from Ower and Green Island, narrow that gap to just 70 m. This would be the obvious location for access control with the striking appearance of the Purbeck marble topped structures further enhancing the 'gateway' entrance to an inner harbour basin and riverine routes. As such they would have marked the entrance to the heart of the node and paralleled the entrance to the harbour between two extended sand spits and so provided visual continuity between natural and artificial grandeur. The two 'jetties' reaching into South Deep, capped with creamy-white Purbeck marble which would shimmer above the water, would have been visually impressive. The monumentality of their appearance could also have reflected the importance attributed to the maritime/trade function and/or the status of the community operating the node. A control and defence function for the moles was first suggested by Bugler (1967, 160) although he attributed that proposal to the Saxon period as a defence against possible Viking raids (see section 7.3.6 above).

As outlined above, the hinterland of southern Poole Harbour contained sites involved in large, 'industrial' scale manufacturing and production processes. The output from those processes was fundamental to the economy of each site and the area as a whole. The sites were accessed primarily by the harbour and riverine waterways, the origins of which all lie within the area of the harbour beyond South Deep and 'inside' the line of the two structures. The location of the South Deep control point would permit all waterborne traffic to and from those sites to be monitored, with concomitant attributes of access and security for the routes, sites and the economic outputs of the littoral and hinterland of Poole Harbour.

The control of access in this way was a feature of Mediterranean harbours, as at Piraeus (the fifth century BC port of Athens) and Motya (Phoenician harbour on Sicily) where the entrances were deliberately narrowed by the construction of moles (Shaw 1972). In both cases, immediately within the narrowed entrance was a 'cothon', a holding basin for vessels moving through the gap (*ibid*). At Piraeus, the access was further protected by a chain that could be drawn up between the two moles. The 70 m span between the South Deep moles could easily be protected by a chain in this way. Chains are described by Caesar (*de Bello Gallico* III.13) and a probable Iron Age example was found with an anchor at Bulbury Hill (Cunnington

1884; Cunliffe 1972) (included as a site component in the Poole Harbour complex, see above).

If the alternative function of the 'jetty' structures as control points is accepted, it also has implications for the sea-level calculations presented in section 7.3.6. Control point moles would not require the 1.0 m freeboard above HAT suggested for quays and 'jetties' (Waddelove and Waddelove 1990). Instead, a lower figure would be appropriate: the structures, as a minimum, had to constrict the access route in to and out of the harbour so would not need to be particularly proud of the waterline. Therefore the top level of the structures (at -0.89 mOD) need be little different to the contemporary sea-level. It is known that sea-level was static or falling in the Iron Age (Edwards 2001) and Jarvis has calculated the late Iron Age HAT to be -1.0 mOD. The tops of the moles would therefore have stood at least 110 mm proud of HAT[45] at that time.

Whilst considering the possible function of the 'jetties' it is interesting to speculate that they may not have served a permanent role but instead were used for seasonal or 'special' purposes (J D Hill, pers. comm.). There are parallels elsewhere in the country for non-functional structures being built in places which would be regarded as 'empty' in functional terms in the middle Iron Age (J D Hill, pers. comm.).

The reinterpretation of the structures as monumentally impressive statements and access control points rather than 'jetties' does not diminish the role of Poole Harbour as a major coastal node and port. Indeed, if control of access was so significantly facilitated, it suggests that the port of Poole Harbour, and the sites, ships and cargo within, were worth protecting. It is to be hoped that future investigations off Fitzworth Point, where Calkin (1949) revealed contemporary Iron Age activity, will reveal whether a holding basin or other facility associated with the mole-defined harbour existed.

[45] HAT is the extreme height a tide is likely to reach: more usual tide heights would not reach those levels.

7.6 Summary

The investigation of Poole Harbour as a 'probable' node involved desk-based survey, geophysical survey, investigation by auger, probe, and diver surveys, and excavation. The results from all elements of this case study support the identification of Poole Harbour as a 'probable' Iron Age coastal node. The investigation concentrated on the south of the harbour and explored the physical and chronological relationships between Furzey Island, Green Island and Ower Peninsula.

It is suggested above that Iron Age occupation began on 'South Island', perhaps developing from earlier, Bronze Age occupation of the area of Furzey Island. In the middle Iron Age, two 'jetties' were constructed which constricted access through South Deep. It is also suggested (7.5.4 above) that these in fact served as 'control points' to monitor the main route into and out of the inner harbour and subsequent access routes by river and over land to sites in the hinterland of the harbour. That further suggests that, by that time (*c*.250 BC), Poole Harbour was operating as a port at a scale sufficient to justify and support the investment required to build the two structures. Contemporary pottery has been found on Furzey and Green Islands. However, the majority of the pottery and other material recovered in excavation dates to the late Iron Age, particularly the final century BC and first century AD. Evidence from excavation suggests that, at that time, Green Island was used for the manufacture of shale and iron items on a large scale. During that time, rising sea level and land erosion bisected 'South Island' and the area now known as Furzey Island was abandoned. At the same time, *c*.20 BC, a settlement of formal plan was established at Ower and the activities previously undertaken on Furzey were relocated to the peninsula. Regional and continental material (including finewares and amphora) continued to be imported in increasing quantities. Cox and Hearne (1991, 79) considered that the "rise to prominence of the port at Ower Peninsula in the early first century AD may be seen as both a development and relocation of the trading mechanisms operating at Furzey and Green Islands in the first century BC". Geophysical survey detected anomalies in the intertidal area, opposite Green Island, which suggest structural features remain buried under the muds. It is possible that the features relate to the Iron Age occupation of the peninsula, which continued into the Roman period. If that is the case, the current estimation of the size of the settlement at Ower (10 ha – see section 7.3.2 above)) will need to be revised upwards. That would make the port-side settlement considerably larger than the settlement area on the edge of Christchurch Harbour at Hengistbury Head (currently estimated to have been *c*.7.5 ha (Cunliffe 1978, 75)).

It has been shown in this study that Poole Harbour conforms to the physical traits which characterise a coastal node in the Iron Age (section 4.2 above) and that the area around the harbour contained the four main elements of a 'nodal complex' (4.3 above). In addition, finds of pottery imported from other regions and the continent suggest the harbour was indeed a port which operated on an international scale. Evidence of manufacturing on Green Island, of shale and metal items, possibly for export, supports that suggestion. The evidence of the 'jetties' in South Deep, the Poole log boat, and pottery finds suggest that the port was active in the middle Iron Age and that by the late Iron Age it was operating within the international maritime network.

Chapter 8

Case Study 3: Bigbury Bay, Devon

8.1 Introduction: the research question

In Chapter Five, Bigbury Bay was identified as a 'potential' coastal node[46] on the basis of existing evidence. Here that evidence is explored and expanded upon. Unlike the previous two case studies, which examined 'definite' and 'probable' nodes, the study of a 'potential' class site was an opportunity to determine if the identification of sites based on the physical characteristics of an area was a viable method. In addition, the focus on two hillslope enclosures permitted detailed consideration of high ground elements in the coastal node complex.

Several sites had been identified in the south-west sector (see Appendix One) whose topographical situations matched the nodal model. After consultation with Devon County Council Archaeological Service (DCCAS) it was decided that the area of Bigbury Bay in South Devon (Figure 107) was suitable to explore the model. The bay contains the following components of those identified in Chapter Four as key elements of a coastal node:

- two rivers, with large tidal estuaries, both providing routes inland to Dartmoor
- a distinct headland marker at the southern extent of the bay
- presence of an off-shore island, connected by a low-tide causeway, which is an identifiable marker from the sea
- shelter from winds provided by the sweep of the bay, the island, and several small coves
- safe haven with good anchoring/mooring locations in the bay and estuaries
- beaching points and natural hards in the coves, on the causeway, and within the estuaries
- capacity on the island and within local enclosures for securely storing goods.

[46] Defined as one that matched the physical characteristics identified in the model, but which had been subject to little specific archaeological investigation.

In summary, Bigbury Bay offered the physical combination of a sheltered bay with identifiable landmarks, unhindered approach and landing sites, and two major estuaries which open into the bay (with rivers that provide good inland access with routes leading to Dartmoor). Davis (1997) assessed the suitability of the area's physical characteristics in his study of pre-Medieval port sites in south-west Britain, and rated Bigbury joint third of the 18 south coast sites in his survey.[47] The opportunity to examine two (undated) hill slope enclosures at Mount Folly was taken, in order to provide dating evidence to test the theory of Iron Age use. The site at Mount Folly overlooked the other elements around the bay and inland, and was easily accessible and suitable for fieldwork.

The investigation included desk-based research, geophysical survey and sample excavation. There is little information available regarding local sea-levels in the past, so an assessment of existing work on dated levels from submerged forests and peat beds was included in this study. This chapter reviews first the physical setting of Bigbury Bay and sea level, then reviews the elements of the coastal complex, and finally reports the results of the fieldwork.

8.2 The physical setting (Figure 107)

Bigbury Bay is on the west coast of the South Hams of Devon and is defined to the north by the cliff coastline of Newton and Noss. This is a rock stretch, running approximately east – west, with shelved cliffs rising straight from the sea. As the line curves to turn south, it is broken by the mouth of the Erme Estuary and the site of Mothecombe, the northernmost element of the Bigbury Bay complex. As with the Avon running down to Bantham, 6.5 km to the south, the Erme estuary is a key component of the proposed Bigbury Bay complex. The southern extent of the bay is marked by the promontory fort of Bolt Tail, itself an element of the Iron Age complex. The coastline measures *c.*15 km between the defining points of Mothecombe and Bolt Tail.

The nature of the coastal fringe varies and includes the steep cliffs at Newton and Noss and Bolt Tail, sheltered coves at Meadowsfoot Beach (Mothecombe) and

47 Bigbury and St Michael's Mount both 'scored' 81/100; Plymouth 85/100; Christchurch 88/100 (Davis 1997, Table 1).

Hope Cope, and open sand beaches at Challaborough, Bantham and Thurlestone. Away from the coast the land rises steeply and there are 30 potential high ground enclosures and hillforts within five kilometres of the HWM (including estuaries), 17 of which are within five kilometres of the coastline between the rivers Avon and Erme (derived from records of sites, mainly recorded through aerial reconnaissance, in Devon HER; see Table 19 and Figure 65). Within the bay, the offshore island of Burgh Island is connected to the mainland by a low tide natural sand causeway. It serves as both defined island space and a prominent land mark for navigation into the bay.

The coast has not been subject to excessive modern development, although Bigbury-on-Sea is effectively a new town, planned and constructed during the early twentieth century. Earlier fishing activity was conducted from the bay with fishermen's cottages located away from the immediate beach zone (R Grimley, pers. comm.). Otherwise the area is essentially rural with a predominantly agricultural land-use. Whilst the lack of development has retained the rural character of the area there has been little opportunity for development-related archaeological investigations of any sort. What is known of the archaeology of the area therefore comes from stray finds, field observations, aerial reconnaissance, and excavations at Bantham Ham.

8.2.1 Sea-level change

There are currently few data records related to sea-level change in this area of south-west England. The current HAT calculation for Devonport (Plymouth) is 6.07 mCD, and LAT is 0.10 mCD (National Tidal and Sea Level Facility, 2004). Chart Datum at Devonport is -3.22 mOD so HAT at Devonport is 2.85 mOD, and LAT is -3.12 mOD. It has been estimated (Long and Roberts 1997, 34) that sea-level in the whole of this sector increased by an average of *c.*1.3 m over the past 2000 years, which suggests the late Iron Age HAT was *c.*1.55 mOD.

An alternative estimation is provided by Tooley (1990, Figure 1.4) who calculated that within South Devon, annual subsidence ranges are between 0.1 – 1.4 mm pa (Tooley 1990, Figure 1.4). Those figures equate to 0.2 – 2.8 m land subsidence/RSL rise in the past 2000 years (see section 3.2.2 above) which would suggest late Iron Age HAT was between -0.05 and 2.65 mOD – a large range which in the context of the present study does not permit adequate local discrimination. Therefore, it is useful to now consider the few known examples of dated levels within the current intertidal zone of Bigbury Bay, as indicators of former sea-levels.

Thurlestone Sand contains an intertidal peat deposit and submerged forest that, from time to time, is exposed by the action of rough weather. The peat was sampled in 1998 and returned a radiocarbon date of 3445±50 BP (A-10006) from the base of the deposit, and 3370±50 BP (A-10005) from the top of the peat (spread *c.*190 mm) (Reed and Whitton 1999, Appendix 6). These were calibrated to early Bronze Age dates (see Table 14). Together with environmental analysis of the samples, this suggested early/middle Bronze Age land clearances for pasture (Reed and Whitton 1999). The date is of particular interest when related to the find of a possible portion of a log boat which was recovered from within the submerged forest and neighbouring deposits (see detail for Thurlestone Cove and Hope Cove in section 8.3 below).

A submerged forest at Hope Cove lies *c.*1.75 km south of the Thurlestone site. Both sites were observed and recorded by Thomas Winder in the early twentieth century who stated that they were of a "similar formation" (Winder 1924b, 124). If the Bronze Age date from Thurlestone is tentatively also attributed to Hope Cove it would suggest a post-Bronze Age date for the structures and material observed to lie on the forest bed (see detail for Hope Cove in section 8.3 below). That would seem apparent from the nature of the material that suggested iron manufacture, but also provide an approximately dated level for consideration of sea-level change. The features were observed *c.*2.44 m below HWM. If Waddelove and Waddelove's (1990) freeboard assessment of 0.3 m for buildings is applied, this suggests, with every awareness of the tenuous link to the forest date, that the sea-level in this area was at least *c.*2.74 m lower during the later prehistoric period. That figure is very close to Tooley's (1990) maximum estimation of RSL change of 2.7 m over the past two thousand years, and more than double Long and Roberts' (1997) estimation of 1.3 m (see above).

8.3 The coastal complex of Bigbury Bay (Figure 107)

In Chapter Five it was determined that Bigbury Bay displays many of the characteristics of an Iron Age coastal node complex. Topographically, the coastline matches the necessary physical attributes detailed in Chapter Four. These include sites on the coast, excellent riverine access, an off-shore element, and associated high-ground sites that are visible from *c.* 24 nm (27.6 miles, 44.5 km) offshore (Davis 1997, Table 1). In addition, two sites conform to the complete range of traits associated with coastal nodes (see section 8.4 below). The sites considered as elements of the Iron Age complex, and their archaeological backgrounds, are detailed below.

Burgh Island (Figure 58)

Burgh Island is topographically the most dominant feature within Bigbury Bay. This is an off-shore rock mass covering *c.*5.5 ha and rising to a height of *c.*43 mOD. It is fringed by a rocky coast on its north, west, and south sides. To the east it is connected to the mainland by a natural causeway of compacted sand, over 250 m long, that is exposed at low tide. The causeway divides the sandy beach of Bantham to the east from the cove of Challaborough Bay to the north. The sandy beach on either side of the causeway slopes away very gently – *c.* 60 m has to be covered before deep water is reached. This has the effect of reducing the power of waves breaking on the beach, so making it easier to launch and beach vessels.

The island represents a particularly prominent land mark for vessels at sea (see above). Despite its rock-strewn fringe, there is a suitable beaching point on the south side (264750E, 043800N), and a natural deep-water, sheltered mooring and approach for small craft (264880E, 0438550N) (Figure 58). It therefore had serviceable access from both land and sea at all states of the tide. One prehistoric find has been recorded from the island: part of a mica-schist mould for a south western style Bronze Age palstave (Pearce 1983, 433). No archaeological investigation has been reported on the island, but a very small-scale excavation was carried out in September 2003 and March 2004 by Ken and Petra Dark (University of Reading) to investigate a potential small earthwork feature at *c.*264800E, 044000N. Possible Dark Age pottery was retrieved from amongst modern debris but the 'earthwork', essentially a sand feature, was considered modern (K Dark, pers. comm.).

It has been suggested (Davis 1997; see section 3.3.1 above) that Burgh Island is the site of *Ictis*, the island referred to by Pytheas and other classical authors (including Timaeus, Diodorus and Pliny) that was involved in the export of tin from Britain into the Mediterranean trading network. The classical sources refer to an island site "lying six days' sail inwards from Britain" (Timaeus *Natural History* IV.104) where "at the time of the ebb-tide the space between this island and the mainland becomes dry and they [the inhabitants of Britain, particularly *Belerium* (Cornwall)] can take the tin in large quantities over to the island on their wagons.... On the island of *Ictis* the merchants purchase the tin of the natives and carry it from there across the Strait to Galatia or Gaul" (Diodorus V.22). The physical description of the island connected by a natural causeway matches Burgh Island very well. Davis (1997, 136) interpreted *Belerium* as the promontory of the Lizard, whereas Cunliffe (2001b, 76-7) identified it as the Penwith peninsula at Land's End.

Davis (1997, 136) was concerned that the Channel crossing from this point was too long as Bronze Age seafarers favoured short voyages that could be undertaken in a day (see Chapter Four). His consideration of later prehistoric navigation suggested that the tin was coasted east before crossing the Channel, possibly to Christchurch and the area of Hengistbury Head. However, his theory relied on the interpretation of "six days' sail". He suggested that if the writer was instead recording six days' overland travel, then Bigbury (or Mount Batten near Plymouth) could be considered as *Ictis* as they are both *c.* six days by pack animal from the Lizard (Davis 1997, 136).

To the south of the causeway and island is the mouth of the river Avon: this runs unhindered into the sea between sandy banks off Bantham. The Avon is another key element in the coastal complex (see section 8.4.1 below).

Challaborough Bay (Figure 59)

North of the Burgh Island causeway is Challaborough Bay, a crescent-shaped sand beach fringed with exposed rocks. The gentle shelving of the sand would make a suitable beaching point for all prehistoric vessel types, as at Bantham (see below). It provides a more sheltered haven than Bantham whenever the wind was in the south. A freshwater stream still runs into the back of the beach that is fed through two steep-sided valleys. The southern valley sheltered the former trackway down to the coast. The site at Mount Folly (see 8.5 below) is located on the southern ridge top of this valley. The benefit of the sheltered cove as an alternative haven and beaching site, with attested inland (overland) access, makes Challaborough Bay a viable component of the coastal complex.

The Long Stone (Figure 60)

This is a distinctive 'finger' of rock that rises *c.*20 m from the sea immediately south of the mouth of the Avon at the end of a hard rock ridge which runs south of Bantham. It is identifiable from the sea and could have served as a landmark, possibly marking the entrance to the Avon and approach to Bantham. It is also intervisible with many of the sites considered as elements of the nodal complex.

Thurlestone Cove (Figure 61)

South and east of Burgh Island and Bantham, *c.*2.5 km along the coast, is a single cove with the twin beaches of Leas Foot Sand and Thurlestone Sand. The centre of the cove contains the rough rock formation, The Books, that requires careful navigation by vessels making for Thurlestone Sand. The open backed beaches are edged with rocks. Late Bronze Age metalwork has been found at Leas Foot Sand by metal detectorists, and in 1998 a late Bronze Age pegged spearhead was recovered from the south of the beach (DeHER SX64SE 104: letter from John Allan, Curator of Royal Albert Memorial Museum to Veronica Robbins, Receiver of Wreck, 7 April 1988).

When exposed in 1923, the submerged forest at Thurlestone (see 8.2.1 above) was investigated by Thomas Winder (1924a) who removed a sample for more detailed examination. When cleaned this was found to be the worked bow of a log boat. The timber was oak, *c.*1.5 m long, and the underside of the curved bow was etched with eight parallel grooves. This find came from the "undisturbed subsoil of the forest bed" (Winder 1924a, 123) lying beneath the Bronze Age peat layer. The presence of a log boat from a Bronze Age or earlier context might suggest the long term advantages of this area for waterborne traffic. The boat has been classified as Mesolithic due to nearby finds of flint artefacts (Wymer 1977, 65), but it has not been independently dated and no longer exists. That type of craft was ideally suited to river, estuary and harbour use, as well as short coasting voyages. It was capable of making passage from Thurlestone to the estuaries of the Avon and Erme, and the sites of Bantham and Mothecombe.

Bolt Tail and Hope Cove (Figure 62)

The southern limit of Bigbury Bay is marked by the promontory fort of Bolt Tail. A single earth rampart across the narrowest point of the promontory isolates a site area of *c*.5 ha (Fox 1996, 21-2). No excavation has been recorded at the site and the interior has been much ploughed so any internal features are likely to have been damaged if not destroyed. The HER entry (DeHER SX63NE/3) lists numerous stray finds of worked flints, spearheads, arrowheads, and flakes, none of which have been precisely dated.

Bolt Tail is a distinctive marker from both land and sea to the southern edge of Bigbury Bay. From within the promontory area the coastline is visible to Burgh Island and beyond to Newton and Noss, and the view across the marine approaches is unhindered. The site is edged on three sides by steep cliffs running vertically up from the sea. The highest point within the enclosed area is *c*.63 mOD. Little is known of the nature and function of the promontory fort, but its high ground promontory location makes it a visually distinctive element in the coastal complex.

Immediately north of Bolt Tail is the impressively sheltered beach of Hope Cove. This would offer a more than adequate haven or beaching point for any vessels. As at Thurlestone Sand, a submerged forest has been recorded at Hope Cove (see section 8.2.1 above). In 1922, at *c*.2.44 m below HWM, the outlines of structures were observed on top of the forest bed. One structure is recorded as circular, approximately 1.8m in diameter; another as square, *c*. six metres across (Winder 1924b, 124). Winder recorded that "Indications of smelting, some slag, and a worked flint were found among the foundations" (*ibid*). If the smelting evidence is attributed to the Iron Age (based on tenuous dating of the submerged forest and the nature of the metallurgical material), it would suggest a site at Hope Cove, sheltered by Bolt Tail, which was involved in metal production during the period of interest to this study. Production and manufacturing sites are suggested elements of the potential coastal complex and metal production and/or working were undertaken both at Hengistbury Head and sites in Poole Harbour. The other principal elements, Bantham Ham and Mothecombe, are discussed below.

The elements of the Bigbury Bay complex

The main elements of the proposed Bigbury Bay 'coastal complex' can now be summarised as follows:

Burgh Island	Offshore island linked by causeway. Bronze Age axe mould. Thought by some authors to be the site of *Ictis*.
Bantham Ham	Roman/Dark Age coastal site with hints of later prehistoric activity. Ideally placed to utilise the safe haven and beaching at Bantham Sands (alternative at Challaborough Bay) and with inland access via the Avon estuary. Possible node focus. Discussed below.
Rivers Avon and Erme	Main estuaries with river routes from Dartmoor. The estuaries offer safe haven to vessels and have potential coastal node sites at their mouths (Bantham Ham and Mothecombe). Finds of Iron Age material along the Avon.
The Long Stone	Natural rock stack that marks the mouth of the Avon and is intervisible with many of the other sites of the complex.
Mothecombe	Iron Age material at cove offering safe haven and beaching point with inland access via Erme Estuary. Additionally signified by finds of tin ingots from possible prehistoric cargo vessel wreck offshore. Possible node focus. Discussed below.
Thurlestone and Hope Cove	Additional beaching points with prehistoric log boat and possible iron smelting site respectively.
Bolt Tail	Promontory fort overlooking the bay and all approaches. A high ground element.

The place-name 'Bigbury'

In 1754-77, Dean Jeremiah Milles sent a questionnaire to the incumbents of all English parishes. This asked a range of questions about the physical, economic and agricultural state of their parishes, and included inquiry about antiquities, place-names and the like. The incumbent of Bigbury replied that the etymology of 'Bigbury' was "From Beichan which in Saxon signifies little, and Bury which signifies a fortification". *Place names of Devon* (Gover et al. 1931-2) on the other hand suggests a derivation from the personal name, *Bicca*, and Anglo-Saxon *burh*.

It is clear that the derivation suggested by Milles' correspondent is erroneous: if a **bychan* type root were present at all it would be of Celtic, not Saxon, origin (Padel 1985, 21), but even this is inherently unlikely, as few Celtic place-names for settlements survive in this part of Devon (Gover et al. 1931-2, xiii-xxiv) ('-bury' here is more likely to derive from Old English *beorg*, meaning 'hill' (*ibid*, 267)). However, a further interesting origin for the name may tentatively be suggested, which is of particular interest in the context of this study. Discussing the word **bic*, Smith (1970, 33) gives meanings including "something pointed", or 'beak-like' as a topographical description (see also Gelling 1984, 180). No feature in Bigbury parish can be regarded as particularly beak-like on land. However, the outline of Burgh Island might well be described as beak-like from the sea. While obviously an Anglo-Saxon place-name does not relate to the period under discussion, we have potentially an interesting insight into the way Burgh Island was viewed and named by mariners in the later first millennium AD. If Burgh Island was the **bic* and *beorg* (pointed hill) it has given its name to the whole parish, while the present day name of the island retains the second element (*ibid*, 269). Since the island's topography is unlikely to have changed since antiquity, this evidence of importance to mariners can perhaps reasonably also be applied to the later prehistoric period.

8.4 The coastal node in Bigbury Bay

Within the nodal complex of Bigbury Bay it was not possible, on current evidence, to determine if there was a single nodal focus. Two sites matched the list of characteristics particularly well; based on the archaeological investigations already undertaken, either (or perhaps both) could have fulfilled the role of primary node site but the dating of the sites is not yet clear enough to determine their chronological relationship. The two sites are Bantham and Mothecombe which are *c*.6.5 km apart. Each site is considered below with high ground enclosure sites that lie within the hinterland of the coastal complex.

8.4.1 Bantham (Figure 63)

Bantham Ham is a beach site, occupying a sandy, bulbous promontory and was one of the first to be scheduled in Devon (in 1922, SAM 8) on the basis of an apparent series of earthworks recorded in 1902 (Jenkins 1902). If these were indeed earthworks they are now covered by the sand (Griffith and Reed 1998). Excavations there (see below) have recovered mainly Dark Age material including continental imports. However, earlier (prehistoric) use of the site cannot be discounted, and there is reference (Fox 1955; Peacock 1969; H Quinnell pers. comm.) to the recovery of two Iron Age sherds that unfortunately cannot now be traced. Romano-British material has also been recovered. Some of the questions relating to the form of the site might be answered by geophysical and detailed topographical survey, but unfortunately permission was not available to conduct such work within the area of the SAM for this research.

Frances Griffith (1986a) has usefully summarised the history of archaeological investigation at the Ham. In outline, the archaeological potential of the site was first recognised in 1864 by Miss S Fox who observed human bones, initially attributed to the remains of shipwrecked sailors, in the sand dunes, and recorded many animal bones that were removed from the marsh as it was drained. Early twentieth-century writers, Elliot (1901) and Jenkins (1902), recorded archaeological features and an "ancient camp" of earthworks and burnt piles on the Ham. Artefacts of flints, stone, bone, ceramic, and metal were noted, and Jenkins asserted that the material had been "accumulating since Neolithic times" (1902, 22). The ceramic material was re-examined by Lady Fox (1955) who declared that the site was a post-Roman trading mart, although earlier evidence in the form of the two sherds of Iron Age Glastonbury Ware was also reported. It is these sherds that probably led to the identification of material of Iron Age A/B date at this location on the Ordnance Survey map of *Southern Britain in the Iron Age* (1962). Peacock (1969) referred to this material but did not examine it as, by that time, the sherds could not be located (H Quinnell pers. comm.). In 1978, in response to erosion of the sand dunes, Silvester conducted a rescue excavation in an area of the dunes that exposed hearths, middens, and hollows and recovered much more ceramic material of Roman and later date (Silvester 1981a). He applied his findings to support Fox's trade site interpretation. Further observations were made by Griffith in 1982 when drainage works disturbed archaeological material in the south of the Ham (Griffith 1986a). Again, the evidence recovered was post-Roman, including a hearth that was initially radiocarbon dated from charcoal remains to 1440±90 BP (HAR 5776) (cal AD 605±90 (Griffith 1986a, 50) (Recalibration using different curves later changed that to AD 420 – 780 (Griffith and Reed 1998, 130). See Table 14). More recent investigation included an intensive phase of rescue recording in 1997 slightly to the east of the former observations. This revealed two sides of a rectilinear enclosure with a stone revetted rampart (Griffith and Reed 1998). Romano-British material of second – fourth centuries AD was recovered.

These recent observations called into question some of the earlier interpretations, particularly relating to the camp features and trading function. The existence of the earthworks were first doubted when the area was visited prior to its initial Scheduling (see Griffith 1986a, 46) and Fox (1955) was sceptical of their existence. Griffith and Reed agree that the 'camp' was probably a "transient formation in the sand dunes" (1998, 124). However, as Griffith previously cautioned, "it may be inadvisable entirely to dismiss the accounts of a semi-defensive earthwork here, at a site so readily accessible from the sea" (Griffith 1986a, 47).

Griffith's compilation of the available evidence emphasised the settlement nature of the material assemblage (with a high proportion of spindle whorls, food debris, quern stones, etc.) and structural details (hearths, postholes, and stakeholes). This led her to conclude that the site was seasonally occupied, probably to exploit the marine and riverine resources at hand and to undertake small-scale domestic manufacturing (Griffith 1986a, 48). However, she further commented that "Bantham is eminently well located for participation in coastal and perhaps international trade" (*ibid*) – a key indicator perhaps of the nodal function of the site. It has been suggested that Bantham did indeed function as a 'node' during the fifth – sixth centuries AD (Hodges 1982, 33), when it operated as a 'simple gateway', hosting fair-type trading or markets (*ibid*, 51). A considerable quantity of imported pottery from this period was recently recovered during a small excavation in the sand dunes (Horner 2001), making Bantham the second-largest Dark Age site (in terms of volume of material) in the country (J Allan, pers comm.).

The excavations to date have clearly revealed substantial and extensive spreads of Roman and later material, although a possible prehistoric origin is not discounted for the enclosure excavated in 1997 (Griffith and Reed 1998, 125) and a late Bronze Age date (2950±60 BP (AA-33125)) was determined for a charcoal sample retrieved in the same programme of excavation (Griffith and Reed 1998, 121).

Each area of investigation at Bantham Ham revealed evidence from different periods up to the thirteenth century AD. Later prehistoric activity cannot be discounted here, as suggested by Griffith and inferred from the finds of ceramic material, but any conclusions regarding use of the site are speculative. Only a small proportion of the Ham area has been excavated or surveyed. The potential exists for both artefactual and structural evidence from the prehistoric use of the Ham to be recovered that may help determine its function, possibly as a coastal node. The existence of such material is hinted at by the late Bronze Age radiocarbon determination and Iron Age ceramics that provide strong hints of prehistoric activity at the Ham.

Bantham Ham would certainly conform to the physical traits required of the coastal focus of the node complex – it is located on the bank of the river Avon,[48] next to a sheltered beach with clear access that is identifiable from the sea by the landmarks of the Long Stone and Burgh Island. The Iron Age site of Clannacombe (Green and Green 1970) is *c*.2.5 km upstream, the high ground element at Bolt Tail is 1.3 km to the west, and the enclosure at Mount Folly is just 800 m across the Avon and overlooks the river to Bantham.

8.4.2 Mothecombe (Figure 64)

The River Erme rises on Dartmoor and flows *c*.15 km (*c*.10 miles) to the sea at Erme Mouth, adjacent to Mothecombe. The lower Erme is now heavily silted and the main channel runs between areas of marsh and takes a sinuous route between the sands near its mouth. However, access up river in the past was probably much clearer before the accumulation of the downwash silt. The site of Oldaport, a possible Roman port (Farley and Little 1968), lies *c*.2.5 km from Erme Mouth and is defended by cross-dykes which are currently undated. The earthworks could be late

[48] The river name, 'Avon' derives from the Celtic name (*Abona*) signifying a major river, possibly known and used by Iron Age people (Ekwall 1960, 19-20; Rivet and Smith 1979, 239; Gelling 1988, 90; Sherratt 1996, 214; and see Chapter Four).

prehistoric and Iron Age use of the site is not discounted (F Griffith, pers. comm.; DeHER SX64NW/13).

At the mouth of the Erme, at Meadowsfoot Beach, the site of Mothecombe is the northernmost element of the 'potential' coastal complex. It is a secluded bay, sheltered by high cliffs on either side, with a sandy beach, backed by gently rising land through which runs a freshwater stream. Erosion by the sea and weather has cut back the beach, revealing archaeological traces of both Iron Age and Dark Age occupation. The two occupation layers were divided by a layer of sterile sand. Clay lined hearths and pits were recorded by the Ordnance Survey in the Iron Age level, with finds of possible Glastonbury Ware, stone, and bone (DeHER SX64NW/2). The Glastonbury Ware was not specifically mentioned in the site note by Fox (1961b) and may have been a mis-interpretation of "native grey ware" (comment by W Horner on DeHER sheet SX64NW/2). However, its omission is not startling as the note concentrates mainly on the later material.

The eastern cliff, Owen's Point, overlooks the beach and Erme Mouth. A linear earthwork bank runs along the western crest of the point, approximately south-west – north-east. This is undated (observed by the author) but isolates the highest ground overlooking the mouth of the Erme and the sweep of Bigbury Bay.

The combination of natural and artificial features and Iron Age artefacts made the site at Mothecombe another potential prime element of the coastal complex. The sheltered cove offered a safe anchorage and functional beaching site. The beach, estuary, and marine approach are overlooked by Owen's Point and the isolated promontory. Although their physical extents differ, the sites at Bantham and Mothecombe have in common their sand-based nature and location at the mouth of prominent river estuaries. As Fox commented (albeit regarding Dark Age use of the site), "As at Bantham it appears that there are the remains of a temporary occupation by traders, lighting fires, digging a pit and building shelters of wattle and daub on two occasions, in a sheltered and well-watered spot near the mouth of a river" (Fox 1961b, 80). The similarity between that description and the postulated Iron Age use of both locations is striking.

There is a further element to the Mothecombe/Erme area that suggests its use within the coastal node. The direct approach from the sea to Erme Mouth is impeded by a rock reef including West Mary's Rock (Figure 64c). It was from the vicinity of the rocks that divers recovered 40 tin ingots from the sea bed in 1991-2

(McDonald 1993). The source of the tin was considered to be within south-west Britain, possibly Dartmoor (Fox 1995) directly accessible along the Erme route. It has been speculated that the ingots represented the cargo of a wrecked boat (McDonald 1993; Fox 1995). The proximity of the site to the safe haven at Mothecombe or within the Erme Estuary suggested the vessel may have been making to or from the coast before foundering on the rock. There would be no other requirement for a vessel to be so close to the shore at that point. The ingots were not directly dated, although a Bronze Age / Iron Age date has been suggested (McDonald 1993; Fox 1995; MCA 2002).

Some of the ingots resembled the αστραγάλος (*astragali* or 'knuckle-bone') form of ingot referred to as a first century BC British tin export from *Ictis* by Diodorus (V.22.2). The prehistoric tin trade of south-west Britain has been discussed above, and some authorities proposed Burgh Island, just 4.8 km to the south-east, as the tin-trading island of *Ictis* (see above and Chapter Three). It is not suggested here that these ingots should be taken as prima-facie evidence that Burgh Island was *Ictis*, but they serve to highlight the potential of Bigbury Bay to host prehistoric craft involved in the tin trade.

8.4.3 High ground enclosures

In addition to the elements detailed above, there are other sites in the vicinity that suggest extensive use of the coastal node area in later prehistory. Approximately 3.5 km NNW of Mothecombe and Erme Mouth is the large hillfort site of Holbury. This is a univallate hillfort, enclosing *c.* three hectares, on a knoll overlooking the Erme. No excavation has been conducted at the site but its high ground position within the proposed five kilometre radius of significance suggests it might be related to the contemporary coastal sites (see Chapter Nine).

Similarly, *c.* five kilometres from the sites at both Avon Mouth and Erme Mouth is the probable hillfort site of Yarrowbury. Only part of the univallate earthwork circuit now remains above ground. It formed a sub-circular enclosure of *c.*3 ha on the high ground at *c.*126 mOD (see Fox 1958). The B3392 that leads to the coast at Bigbury-on-Sea cut through the northern area of the site so that earthworks survive only to the south of the road. Again, no archaeological investigation has taken place but the location of the site, approximately half-way between the Erme and Avon that both feed from Dartmoor, and *c*.4.5 km north-west of the coast, suggests it may have played a role in the relationships between the coastal sites.

Other high ground enclosures in the vicinity of the coast have been recognised from the air through Devon County Council's aerial reconnaissance programme (see Griffith 1994; Griffith and Quinnell 1999). Between the Avon and the Erme, and within five kilometres of the coast, 17 potential enclosures have been identified in cropmark form (Table 19; Figure 65). All but two of the enclosures are currently undated; they lie on high ground and are variously of irregular, circular, or rectilinear outline. It cannot be stated that they played any role in the Iron Age coastal complex of Bigbury Bay but their presence attests something of the complexity of landscape organization in that area. Two of the enclosures were tentatively dated as a result of the fieldwork undertaken as a major component of this case study (see 8.5 below).

This section has outlined the sites and traits that suggest Bigbury Bay was a suitable location for an Iron Age coastal complex. Both Mothecombe and Bantham fit the criteria identified in Chapter Four and have been identified as possible candidates for a focus of coastal activity. The resolution of the identity of the focus was beyond the scope of the present research. However, examination of all the elements of the complex here has identified one key component for which more detail could greatly help in considering the applicability of the emerging model to a 'potential' coastal node site. The case study now concentrates on the investigation of that component, one of the high ground elements of the complex, at the hillslope site of Mount Folly.

8.5 Fieldwork at Mount Folly

8.5.1 Background to the fieldwork programme

Opposite the causeway to Burgh Island the land rises steeply from the beach and mouth of the Avon to Mount Folly. At Mount Folly Farm two enclosures were known from aerial reconnaissance (Figure 66). The location of the enclosures, near the top of the hill, was selected for detailed investigation as it afforded an excellent opportunity to investigate the small, high ground enclosure element within the putative Bigbury Bay 'coastal node' complex. The hilltop location is intervisible with all the coastal elements of Bigbury Bay (Challaborough Bay, Burgh Island, Bantham Ham, the Long Stone and Bolt Tail), as well as inland with prominent points on Dartmoor; it also has easy access to the river Avon.

The site was identified through Devon County Council's aerial reconnaissance programme which in 1989 achieved startling results on the previously empty coastal fringe of the South Hams (Griffith 1994, 97; Griffith and Quinnell 1999). Two enclosures were observed and photographed in July 1989 (Figure 66) in Ludgate Field at Mount Folly Farm. As part of that programme, the site was visited a short while later and its topographical situation described, but nothing was then discernible on the ground (DeHER SX64SE/57). Approximately 30 similar coastal enclosures were identified within the vicinity of Bigbury Bay as part of the programme (Table 19) but no intrusive work has yet been conducted. The investigation of the Mount Folly enclosures therefore provided a useful first sample of the currently known coastal enclosures in the South Hams.

As nothing was known of this site beyond the presence of two simple cropmarks that probably represented enclosures, the aim of the investigation was to assess their form and to endeavour to obtain dating evidence. This would determine if one or both could be related to the proposed Iron Age coastal complex.

Prior to the commencement of fieldwork, a desk-based survey was conducted making use of the resources of the Devon SMR, the West Country Studies Library, Devon County Record Office, and the Bigbury Local History Society. This produced information relating to the excavations and stray finds in the area, as outlined in sections 8.3 and 8.4 above. It was hoped to determine the etymology of the name 'Mount Folly', but to date this has proved elusive. One possibility is that the name 'Mount Folly' refers to upstanding earthworks at the enclosure sites that have since been ploughed away (F Griffith, pers. comm.).

Ludgate Field, the site of the two enclosures which were sampled, is locally pronounced 'Lidget' (as 'midget') and occasionally spelt as such. It has not been possible to trace this field name further back than the Bigbury Tithe Award of 1842. However, Griffith (1986b) has commented on the conservatism of Devon field names, and on the potential value of the long transmission of apparently meaningless names. In this context, a curious parallel for the name Ludgate may be raised. In his 1913 discussion of cross-Channel prehistoric (predominantly Bronze Age) trade (discussed above, Chapter Two), Crawford adds a small footnote on the place-name 'Ludgate', which he associated with a Gaulish deity, known in Britain as Llud and subsequently transformed into the Christian St Catherine. Crawford noted that sites sacred to Llud/St Catherine were "almost invariably found on the coast; they are generally on the tops of hills", with a chain of such sites along the western half of the south coast (1913, 648). This accords with the location of Ludgate Field at Mount Folly.[49] According to Crawford, the deity was a composite of the attributes of Zeus and particularly of Poseidon and he further comments that "hence the sites sacred to him [Llud] would be situated on hills overlooking harbours or where an extensive view could be had over the open sea" (*ibid*). While this point can clearly not be taken any further in the context of the present study, the presence of a field name 'Ludgate' in the heart of the nodal complex at Bigbury Bay is, at the very least, a tantalising suggestion of additional complexities in this area.

The site was visited on several occasions and discussions with the land owner provided useful information regarding recent land use. For the previous four years the field had been used for rough grazing for sheep and cattle; prior to that it was for some years utilised for vegetable cultivation and ploughed to depths that varied from 0.3 – 1.0 m (J Tucker, pers. comm.). Ploughing to such depths had truncated the archaeological features which were observed during the excavation to survive at shallow depths (*c*.0.3 m) and would have expunged any surviving earthwork elements of the enclosures. The land had been listed as agricultural in all the records

[49] It also matches the locations of St Catherine's Hill overlooking Christchurch Harbour (see Chapter Six) and St Catherine's chapel on a knoll overlooking the sea above Chesil Beach at Abbotsbury.

consulted. Since 1997 the field has been subject to an agreement under the Countryside Stewardship Scheme for arable margins. Permission was granted by DEFRA for the fieldwork to go ahead provided that any disturbance to the two metre margins was made good and that an alternative route was provided if the line of the permissive path was compromised. Neither the margins nor the path were disturbed (*in litt.* 22 August 2003).

The site was centred on SX660448, *c*.1.5 km north-east of Burgh Island and *c*.900 m north of the mouth of the river Avon at Bantham (Figure 67). Ludgate Field occupies *c*.4.8 ha and is bounded on all sides by a metal fence and hedge with several access gates. The eastern edge is bounded by the B3392 – the only current route down to the coast at Bigbury-on-Sea. The field sits on a ridge overlooking Bigbury Bay; the highest point is *c*.111 mOD and the land generally slopes north-east – south-west with minor undulations and hollows. The underlying folding slate/shillet geology is of the Lower Devonian Meadfoot Group (Durrance and Laming 1982).

Fieldwork was undertaken in September 2003 and comprised two distinct elements: geophysical survey and excavation. The geophysical survey was undertaken between 2 – 13 September. The excavation ran from 15 – 29 September and was undertaken by volunteers from the Devon Archaeological Society, Plymouth and District Archaeological Society, and other local organisations and individuals under the direction of the author. Each element is reported below and in Appendix Five.

Both the geophysical survey and excavation were related to a site grid that had been established prior to the fieldwork commencing using dGPS. The site grid was aligned with the Ordnance Survey National Grid and marked for the duration of the fieldwork by wooden stakes at 40 m intervals and by plastic pegs at the intervening 20 m marks for the geophysical survey only. Prior to removing the site pegs, two points were marked by Perma-Pegs at 266012.27E 44888.25N (MTF1) and 266014.11E 44848.56N (MTF2) (Table 15). These will permit future work to be matched to the same grid.

8.5.2 Geophysical survey at Mount Folly

The methodology, conditions, and primary results of the resistivity and magnetometry surveys are set out in Appendix Five. This section presents the interpretation and discussion of those results.

Resistivity survey

The resistivity survey (Figures 68 and 69) was conducted in far from ideal conditions. The hot, dry summer of 2003 continued into September making ground conditions hard and arid. Subsurface water rapidly drained down slope over the underlying impervious shillet, and any occasional moisture did not penetrate the hard ground surface but quickly evaporated each morning. The subsurface conditions did not display marked contrasts, in general, between areas of high and low resistance: the range of readings for the entire survey was 37.5 – 1291 ohms (mean reading 168.8 ohms).

The south-east of the survey area (grids I3, J3, J2, J4) is bland with little discernible variation (102 – 135 ohms). This is at one of the lowest points in the field where any moisture might more readily accumulate so masking any subsurface feature.

Few discrete anomalies were detected by this survey, most were of linear form and the majority are best interpreted as geological. The main archaeological responses were anomalies **A** and **B**. These accord with the two cropmarks recorded on the aerial photograph and are interpreted as Enclosures One and Two respectively.

Both enclosure circuits responded as lines of low resistance, suggestive of features cut into the hard geology and filled with material of lower resistance. The circuit outlines were not particularly distinct so this plot could not be used accurately to position the enclosures on the ground, nor could it be relied upon for detailed excavation planning. However, it was useful to observe the geological trends and compare the results with the magnetometry plot.

Primary magnetometry survey

The response from the magnetometry survey was exceptional, providing more detail and clarity than had been anticipated (Figures 70 and 71). The underlying shillet geology provided a very distinct response to the deposits that had accumulated in any cuts. It was clear from the plot that Ludgate Field was the site of much more activity than had been realised: not only are the two enclosures recorded in the aerial photograph and by the resistivity survey very clear, but a suite of linear and discrete anomalies is present. Unlike the resistivity survey, the magnetic responses were not so greatly masked by geological factors.

The two enclosures were the major features for consideration. Enclosure One is clearly shown as a sub-rectangular feature of highly responsive (magnetically enhanced) characteristics. The plot suggests that the enclosure is *c.*50 m x 50 m, with straight sides, rounded corners, and an entrance in the southern side. The entrance is quite wide (*c.*4.0 m): to fill that gap would require a considerable gate or barrier. A discrete positive point anomaly is isolated mid-way between the two terminals and could be a post hole for a gate or barrier support. The eastern circuit terminal is enlarged.

Several linear and discrete anomalies were recorded within Enclosure One (see Appendix Five). One of the most interesting of these is anomaly **d**. This ovoid arrangement, *c.*11 m x 8 m, could represent an internal structure. It is located near the top of the high ground ridge. Anomaly **r**, a potential underground water course, appears to run beneath this.

Outside Enclosure One, anomaly **c** runs parallel to the north and east sides. This was interpreted as a ditch, probably forming a boundary to a land parcel within which Enclosure One was located. Enclosure One and this ditch clearly respect one another. Although the cuts appear to be of different widths, the similarity in signal strengths suggests the two anomalies filled with the same material. This in turn suggests that they may have been filled at the same time. It is, however, not clear if they were dug at the same time, but the positions of the features do appear to be set out in relation to one another.

Despite their different plan forms, Enclosure Two (anomaly **b**) is similar in response and boundary dimensions to Enclosure One and both features enclose approximately the same area (*c.*2500 sq m).

The irregular, five-sided outline of Enclosure Two is obscured in the magnetometry survey in the east by the responses from a trackway and a cable: it is possible that these have disturbed or destroyed the archaeological features in their path. The magnetic plot has not revealed any break or discontinuity in the circuit of

Enclosure Two that could be interpreted as an entrance: it is therefore likely that any entrance was located in the eastern, now disturbed, area. The aerial photograph (Figure 66), taken in 1989 before the track was laid through the field, does appear to show a break in the circuit at the north-east corner, but the angle of view and indistinct appearance of the cropmark at that point means that it is not possible to assess with any accuracy the width of the possible entrance.

Within the enclosed area, several anomalies were detected. Anomaly **f** consisted of an east-west band of positive readings and a roughly circular arrangement of discrete points: it also appeared as a dark cropmark on the aerial photograph. Given its form and location within the centre of Enclosure Two it was considered to be of potential archaeological significance so a higher resolution magnetometry survey was conducted on eight grids overlying the anomaly (see Appendix Five and further magnetometry survey below).

A circular arrangement of probable post-holes (anomaly **y**) lies to the north of anomaly **f** within Enclosure Two. This may represent a building or structure (diameter *c*.5.0 m) with an entrance facing south to the centre of the enclosure and anomaly **f**.

The north-west side of Enclosure Two is paralleled by the ditch represented by anomaly **c** that, as at Enclosure One, runs at *c*.10 m distance. This in turn is paralleled by anomalies **t** and **k**. These are also likely to be ditch cuts that may be discontinuous responses of the same feature. The anomaly **k/t** line merges on the plot with the north-west side of Enclosure Two. There is the slightest suggestion that the line of anomaly **k** continues within the line of the enclosure.

It is possible that anomalies **c**, **i**, **j**, **k**, and **t** are part of the same feature system that could represent field boundaries or a route-way. If this is so, a further suggestion of phasing can be tentatively put forward. It is suggested that Enclosure Two predates anomaly **k** and that its north-west side was incorporated into the boundary cut of anomaly **k**. This further suggests that Enclosure One was constructed after the boundary system: it is positioned suitably within it and, had the enclosure ditches been present they may have been re-used in the same manner as the north-west side of Enclosure Two.

Further magnetometry survey (Figure 72)

In order further to investigate and hopefully define the characteristics of anomaly **f** from the primary survey, a higher resolution magnetometry survey was conducted. Two attempts were made over eight and six grids at 0.25 m reading intervals and 0.5 m traverses. The results more clearly depict the arrangement of anomalies. The three positive responses (anomalies **f1**, **f2**, and **f3**) that have no negative associations are likely to represent the remains of pits that have filled with magnetically enhanced material or are possibly the surviving/detected terminals of other linear features. A fourth anomaly (**f4**) does have a negative association. This is characteristic of features that have experienced a high level of heat, such as a kiln, hearth, or furnace. The response strength suggests that it is quite close to the current land surface. Indeed, the strength of all these responses suggests that the features they represent are not deeply buried.

The east-west positive response (**f5**) that appears to the north of these features in the original survey plot is less discernible at higher areal resolution. The outline is not distinct and it is possible that the readings derive from a shallow depression that has filled with magnetically enhanced material: such a reading is characteristic of a working hollow.

The presence of probable pits, a kiln/hearth, and working hollow in a circular arrangement in the middle of Enclosure Two could be significant. However, no direct association nor relationship, other than spatial, can currently be claimed. This is a matter to be sampled in future investigations at the site.[50]

The further survey of anomaly **f** also detected linear anomaly **e** running across Enclosure Two. It was not apparent on the initial survey how anomalies **e** and **f** interacted. The higher resolution survey has added some detail in that it will be observed that the line of anomaly **e** continues into the circular area of anomaly **f**, although it then remains partially obscured. It is possible that the features of anomaly **f** overlie the ditch represented by anomaly **e** so suggesting that the ditch is an earlier feature.

[50] Further survey and excavation are planned at Mount Folly for autumn 2004 and spring/summer 2005.

8.5.3 Excavation at Mount Folly

A Project Design (Wilkes 2003) was prepared and agreed for a two-week programme of targeted excavation to be carried out in Ludgate Field after the geophysical survey. Two trenches were simultaneously excavated, each measuring 25 m x 2.5 m (Figure 73). Their locations were determined by consideration of the geophysical survey results. The aim of the excavation was to assess the form and endeavour to obtain dating evidence for the two enclosures.

Throughout the two-week period the conditions were very dry and generally bright and hot with a drying wind that blew from mild to gale force. This made detecting soil changes very difficult as freshly excavated material within moments became uniform grey/brown dust. Similarly the trench sections were blandly uniform: attempts at soil/context discrimination were necessarily preceded by spraying the sections with water to enhance the colour variation. At the end of most evenings the trenches were drenched with water from troughs to retain some of the soil integrity and make section definition a little easier the following mornings.

All paper recording was undertaken using the ARTHUR system (Darvill 2000). Each trench supervisor completed a daily summary record sheet that was entered into the site log. Plans were drawn at a scale of 1:20, and sections at the scale of 1:10. The photographic recorded comprises 35 mm colour prints, colour transparencies, 35 mm monochrome prints, and digital images (generally saved as jpeg files).

Each trench location was marked out on the ground and the turf removed. They were each machine stripped in two spits along their length. The western spit of each trench was stripped deeper, preserving the eastern spit in case of overcut. Each deeper spit was stripped to depths of *c*.450 mm at which level areas of natural bedrock (folded shillet) were observed in places. All subsequent excavation was by hand using mattocks, shovels, spades, and trowels.

Trench One (Figure 74)

This trench was positioned obliquely over the northern circuit of Enclosure One (anomaly **a**) and the parallel line of anomaly **c**. It was near the high point of the field, uphill from the location of Trench Two, and enabled both anomalies **a** and **c** to be investigated in one trench, as well as part of the interior of Enclosure One. No excavation had been conducted in this area previously, so very little was known regarding the nature of the soils, the natural bedrock, nor the depth of archaeological deposits. It was therefore considered incautious to excavate the terminals and entrance area so they were avoided. The land fall of 290 mm over the 25 m length of the trench represents a gradient of 1 in 86 – a very slight slope.

Excavation initially concentrated in the western half of the trench and was subsequently extended into the eastern portion to reveal more of the main features. The stony topsoil ran to a depth of 300 - 380 mm along the length of the trench. A fragment of clay pipe and an iron nail (not ancient) were recovered. The topsoil either directly overlay the natural bedrock or, in places, there was an intervening soil layer (C002).

The natural shillet bedrock was exposed for the length of the trench and corresponded with the characteristics observed on the resistivity plot (anomaly **E**) as it rolled or folded from horizontal to vertical planes over very short distances. The planes were bedded at *c*.050°N - 060°N, matching the alignment of anomaly **E**. The natural bedrock had been cut into by two major features (F001; F002), with two minor features in much shallower cuts (F003; F004). The two major features accord with anomalies **a** and **c** on the magnetometry plot.

F001

This was a U-shaped linear cut into the bedrock that accorded with anomaly **c**. From the surrounding bedrock level the cut was *c*.0.44 m deep and *c*.1.2 m wide. The top of the cut was *c*.0.4 m below the current turf line. It had two fill materials. The primary fill (C004) was mainly loose, coarse shillet fragments that lay at random angles. Above this a sag fill (C016) of medium – coarse sand texture also contained shillet fragments and gravel.

A possible burnishing stone (broken) was found at the interface between C004 and C016. One potsherd (f010) was recovered from C016 (see Table 20). This was thin-sectioned and examined by Roger Taylor who concluded that it was part of a late Iron Age vessel made from a fabric sourced in the granitic region of the south-west of Britain (R Taylor, pers. comm.).

F002

This feature matched with anomaly **a** on the magnetometry plot. Excavation revealed it to be a flat-bottomed ditch cut into the bedrock, the top of which lay directly under the plough soil at a depth of *c*.400 mm from the current turf line. The width across the top of the cut was *c*.3.0 m, and the flat base was *c*.1.2 m wide. The ditch was *c*.1.76 m deep from top to bottom (base level 106.38 mOD). The northern, up-slope edge of the cut was easily defined as a smooth shillet surface that followed the natural bedding plane. In contrast, the southern edge was rough with broken shillet making definition difficult. The fill sequence started with slumped shillet fragments (C023 and C028) accumulated across the base and up the sides of the cut, with the fragments uniformly aligned horizontally. This implies that the ditch was open long enough for the shillet to settle into this position – it was not a rapid dump/fill episode. Layers of shillet above this were more randomly aligned with little soil material between the fragments. This suggests a more rapid dump fill sequence as the material was very loose and not bedded or compacted. This was overlain by a fine gravel layer. As the layers of fill accumulated the shillet content decreased to be replaced by sandy, silt-texture soil with a high gravel content. Fragments of coarse, white quartz and smooth, water-worn or polished pebbles were observed throughout the fill. Some of the quartz pieces were more than 100 mm in width. White quartz can be found in the local slate and shillet but none had been observed in the bedrock exposed in either trench. This suggests that the fill material might not be from the immediate area. Charcoal flecks were also scattered throughout the fills. The material retained from within the cut was mainly a representative sample of the polished stones, and one very small sherd of black pottery (f015). Visual examination concluded that it was a late Iron Age south-western fabric (J Allen, pers. comm.; H Quinnell, pers. comm.; see Table 20).

The minor features, **F003** and **F004**, were circular depressions in the surface of the bedrock. **F003** (plan and photo) was *c*.160 mm deep and filled with large shillet and stone slabs and blocks, and large, irregular quartz pebbles. The soil fill (C017) was much more orange in colour than the overlying plough soil. A large, rounded hammerstone was at the base of the hollow (retained by the landowner, Mr J Tucker).

F004, at the south-east end of the trench, contained lenses of clay throughout the fill and abutted an area of heavily stained red soil.

Trench Two (Figure 75)

This trench was positioned to investigate the boundary of Enclosure Two (anomaly **b**), the anomalies running outside and parallel to that boundary, and the linear anomaly (**c**) that ran through the interior of the enclosure. This area was near the lowest point of the field, down the slope and *c*.65 m south-east of Trench One.

The trench measured 25.2 m x 2.5 m (the additional 0.2 m length was cut to clean back the lower edge that had been damaged during the machine excavation). The land fell 2.76 m over that length, equivalent to a gradient of 1 in 9: a much steeper slope than at Trench One.

As with Trench One, excavation started in the deeper machine stripped western half of the trench. Again, the natural shillet bedrock was exposed for the length of the trench, interrupted by the archaeological features. The orientation and characteristics of the shillet were as observed and recorded in Trench One. The topsoil varied in depth from 230 - 380 mm; in places this lay directly on the shillet bedrock. Eight features were cut into the shillet.

F206

The largest feature was that corresponding to anomaly **b**, F206, the ditch boundary of Enclosure Two. This presented a U-shaped profile, *c*.2.8 m wide at its top that was *c*.0.4 m below the turf line. The depth from top to base of the ditch was *c*.1.56 m. As with F002 in Trench One, the northern edge of the cut (up-slope, outer edge) was cleanly cut along the natural shillet face and easily defined. The southern edge was coarsely defined amidst rough cut and natural shillet fragments.

The base of the ditch was filled with coarse shillet and stone blocks in random alignments with little soil material between them (C231, C232). This primary fill slumped slightly to the south but spread across the width of the cut. The higher levels of fill contained clay and sand material with a moderate gravel content. The soil texture and colour varied little through the fill sequence: the main distinction was the alignment of the gravel and stone inclusions that suggested different episodes of fill. The top of the ditch was sealed by C216, a gravel lens that aligned with the base of F205.

F205

The flat base of F205 was *c.*0.6 m below the turf line and followed the general slope of the land down from north-west – south-east. The northern, up-slope side was cut into the shillet bedrock at an angle of *c.*30°. The shillet base was exposed for *c.*2.5 m at which point its line was continued by C216 that ran through the top of F206 before sloping up at *c.*25°. The feature is more than 3.0 m wide at its base, over 5.5 m wide at its top, and *c.*0.4 m deep – wide and shallow. The sandy soil fills all contained frequent stone and waterworn pebble inclusions. The lack of soil distinction and random inclusion alignments made it difficult to ascertain with any veracity the relationship of this feature with F206, but dampening the section made it clear that F205 cuts through the top of F206. It was noted that the shillet base of F205 was smooth with a worn down appearance: this was particularly noticeable on the vertically bedded shillet that elsewhere presented sharp top ridges but here these were worn smooth.

The area of these two features was one of confusion on the magnetometry plot. It is clear that F206 was detected as anomaly **b** and is the boundary ditch of Enclosure Two. The attribution of F205 is less certain. The magnetometry plot shows anomaly **t** running alongside anomaly **b** and, at the location of the trench, the responses merge (see Appendix Five). In addition, potential anomaly **s** also runs through that area. The excavation results suggest that the two features do overlap, as hinted at by their signal responses and that F205 cuts into F206, so the enclosure is earlier than the outside linear feature. However, it is not felt that, at this stage, this relationship has been conclusively resolved.

Other features

F201: a semi-circular, shallow depression in the shillet, filled with brighter orange soil, at the northern end of the trench.

F202: a U-shaped ditch cut into natural shillet with two layers of fill. It is *c.*300 mm deep and *c.*530 mm across the top. The top of the cut was *c.*420 mm from the current turf line. As with the major cuts in both trenches, the northern, up-slope edge was 'cleaner' and more easily defined than the slightly irregularly cut southern edge. From the geophysical survey it was suspected that this feature would match anomaly **c**. However, the dimensions here are different from those of F001 (anomaly **c** observed in Trench One) but the response at this point is less robust so this part of the feature may have been less deeply cut.

F203 and F204: two sub-circular depressions in the natural shillet, both with irregular sides due to the nature of the shillet. Both hollows were filled with dark, gritty soils containing flecks of charcoal. It is possible that these are the remains of stakeholes created when stakes were driven through the soil and into the top of the brittle shillet bedrock. Their alignment, parallel between F202 and F205, would therefore be of some significance and could be interpreted as a line of fence or palisade posts.

F210: a linear cut running diagonally through the trench that corresponds with anomaly **e**. Prior to excavation of the fill, the top of the cut presented as a stone band between two outer soil bands but as the fill material was removed this arrangement became less clear and the fill was found to comprise a random alignment of frequent stone inclusions. The ditch had a u-shaped profile and was cut *c* 0.4 m into the bedrock. The fill (C226) was very stony with lines and pockets of gravel discernible.

8.5.3.1 The pottery from Mount Folly

Seven potsherds were recovered from the two trenches excavated at Mount Folly. The sherds were examined by John Allan, Barry Cunliffe, Henrietta Quinnell and Roger Taylor. The comments of Allan, Cunliffe and Quinnell are recorded in Table 20 and a petrological report, prepared by Dr Taylor, is presented in Appendix Six. The comments and report are briefly summarised below.

Two of the sherds (**f010** and **f015**) were found in Trench One. **f010** was recovered from the lower fill of F001, the small, outer linear ditch. Visual examination of the sherd and a thin section removed from it reveal that it is a late Iron Age fabric with a granitic temper, commonly found in south-west Britain, particularly south Devon (Table 20; Appendix Six).

f015 was found in the lower fill of F002, the boundary ditch of Enclosure One. The sherd was too small for any conclusions to be drawn from examination by eye, but microscopic examination revealed that it was also a granite-derived fabric (Appendix Six).

Five sherds were recovered from Trench Two, all of which came from the fills of F206, the boundary ditch of Enclosure Two, except for one sherd (**f2006**) which was recovered from F205, the linear feature which cut F206 on a similar line. **f2006** is a small rim sherd. Taylor concluded the sand temper was from an estuarine source and suggested that the pottery was manufactured locally (Appendix Six). However, both John Allan and Henrietta Quinnell considered the piece to be part of an Exeter 'sandy grey ware' vessel, made at or near Exeter in the early Roman period (Table 20). It was the only piece not to have granitic-derived components (B Cunliffe, pers. comm.), and also the only piece that was not dated to the late Iron Age.

All the other sherds (**f2021, f2022, f2023,** and **f2036**) were recovered from the boundary ditch of Enclosure Two and were all deemed to be late Iron Age fabrics with a granite-derived temper. Taylor suggests a source on Dartmoor or the streams leading from it for the fabric (Appendix Six), whereas Allan and Quinnell considered the pieces could have originated more generally within the south-west of Britain, and Cunliffe suggested a source in the granite regions of north-west France (Table 20).

8.5.4 Summary of results of fieldwork at Mount Folly

The aim of the fieldwork was to assess the form of two enclosures in Ludgate Field, on the slope of Mount Folly, and possibly to obtain dating evidence from them. A geophysical survey and small excavation was conducted to investigate the enclosures which had been identified in Devon County Council's Aerial Reconnaissance Programme. Only the plan form of the enclosures was known from the aerial photograph, the date and any associated features were not known. The geophysical survey (particularly the gradiometer survey) revealed many anomalies within the field which represent linear, circular, and discrete point features that had not previously been known. The excavation was designed to investigate the defining ditches of the two enclosures and the closely (spatially) associated linear anomalies detected by the geophysical survey.

Two trenches were excavated, one over each enclosure ditch and neighbouring linear feature. It was possible to define the profile of the ditches and their fill sequences. In plan form the enclosures are morphologically distinct: Enclosure One has a regular, sub-rectangular plan, whereas Enclosure Two is an irregular, five-sided enclosure. The ditch profiles of each enclosure are also different: the ditch of Enclosure One is straight-sided and flat bottomed; the ditch defining Enclosure Two has a 'saggy', U-shaped profile. However, the fill sequences and material of both ditches are remarkably similar which suggests that they were open and subsequently filled at about the same time. Pot sherds recovered from within the fill material have been dated to the late Iron Age, and that date is suggested as the period of use of the two enclosures.

The neighbouring linear anomalies, when excavated, were found to be shallow ditches which both contained late Iron Age pottery. The ditch running outside Enclosure One is shown on the geophysical plot to continue through the field, making several turns in orientation, and is likely to be part of the field boundary system. The ditch alongside Enclosure Two is shown as a straight linear and could be a track running through the field.

The fieldwork successfully achieved the aim which had been set. As the two enclosures are currently tentatively dated to the late Iron Age (based on the finds of pottery), they can be included in considerations of the coastal complex of Bigbury Bay at that time. The location of the enclosures, near the top of the hill slope of Mount Folly, suggests that they were carefully positioned to overlook all the nodal elements within the Bay. They are also intervisible with the sources of the rivers Avon and Erme on Dartmoor which flow into the sea within Bigbury Bay. Further investigation at the site (planned for autumn 2004 and spring 2005) will add more detail to what is known of the enclosures from which their function within the coastal complex might be ascertained.

8.6 Summary

This investigation of Bigbury Bay is the first archaeological consideration of the coastal area as a whole. It has been shown that all the physical traits and elements of a postulated 'complex' (detailed in Chapter Four) can be identified on the coast or within five kilometres of it. Two locations, Mothecombe and Bantham Ham, have been suggested as the possible nodal focus, both at the mouths of major estuaries. High ground elements are present at Bolt Tail promontory fort, and the hillforts of Holbury and Yarrowbury. 30 local enclosures have been identified in the Devon Aerial Reconnaissance Programme, and two were investigated as part of this research and tentatively dated to the late Iron Age.

The case study concentrated on the enclosure element of the complex, investigated by fieldwork at Mount Folly. Two hillslope enclosures were examined by geophysical survey and sample excavation. They were observed to have very different plan forms and ditch profiles, but the ditch fill material and sequences were similar, if not identical, for both enclosures. Dated pottery finds from the ditch fills cautiously suggest that both enclosures do indeed date to the late Iron Age, the period of interest in this study. Enclosures of similar plan form to Enclosure One (sub-rectangular) have been identified within five kilometres of the Bigbury coast (listed in Devon HER and Table 19). It is possible that some of those date to the same period and it is planned to investigate a selection of those sites as further study. It is not possible, on current evidence, to determine a function for the two enclosures, but their close proximity to the coast and finds of regional pottery suggest they were associated with the coastal network.

The evidence compiled from other studies and the fieldwork undertaken as part of this research has confirmed the suggestion in Chapter Five that this area was a 'potential' Iron Age coastal node. It has supported the use of the methodology developed for these investigations and verified that the models presented in Chapter Four are useful for identifying possible locations of Iron Age coastal sites. In this way, the investigation of 'potential' coastal nodes can provide constructive information for the further study of maritime sites and networks.

Chapter 9

Iron Age coastal nodes on the south coast of Britain

9.1 Introduction

The late Iron Age coast of the English Channel has been shown in the preceding chapters to be a diverse environment which in various places offered the potential to accommodate a variety of sites of different sizes with different facilities to serve contemporary vessels. One of the main elements in the consideration of the possible site locations was the identification of interface points between the maritime and riverine networks. The evidence from former studies presented in the foregoing chapters and the results of the three case studies are now combined to consider how the coastal sites might have interacted as 'nodes' within and between the networks. As outlined in Chapter One, this exploration is apposite at this point in the development of Iron Age studies, where diversity and interactions have been identified as key themes (Haselgrove et al. 2001). This discussion assesses the earlier models, particularly in the light of the results of the case studies, and presents a new view of the coast in the Iron Age based on the identification of numerous nodal sites.

Hengistbury Head and Mount Batten were previously studied and interpreted in the perspective of continental connections and links with the expanding Roman empire (Bushe-Fox 1915; Cunliffe 1987; 1988a; Cunliffe and de Jersey 1997; Gardiner 2000). Because of those international preoccupations, these were considered the foremost coastal sites of the period. As a result, our understanding and appreciation of the situation at those sites may have become distorted and the appreciation of the potential of others minimised.

The underlying tenet of this study is that alongside the undoubted international role, there was a local dimension in the Iron Age coastal network which could be recognised archaeologically. As examined in Chapter Five and the case studies, the pattern includes not just the large sites of international focus, but those that could have functioned as local and regional nodes for coasting traffic. The latter sites would also have been involved in or linked with local industries and manufacturing for subsistence and/or for trade/exchange.

The distribution of the sites along the south coast (see Figure 76) shows the locations of possible coastal nodes at fairly regular intervals through the three sectors. The south-west sector contains the majority of sites (48.7%) and also has the widest variety of site types. As stated in Chapter Five, this is in part due to the topography and geology of the area, which lends itself to identifiable node locations. The nature of the coast would also have made the availability of havens for shipping at frequent intervals very desirable. Small intermediate nodes provided safe havens for vessels on coasting voyages and cargo points for manufacturing output and agricultural produce[51] which could have been transported by ship to the larger sites and have received alternative goods in return. Within this research, the local approach began at the site specific level and expanded from that to the hinterland and environs, and then on to networks of regional and national/international interactions.

The scale of the sites is also a matter for reconsideration. The full extents of Mount Batten and Hengistbury Head had not been determined in spite of earlier investigations: their physical size had been assumed to be large but their actual perimeters were not tested by excavation or survey. It is not possible now to assess the full prehistoric extent of Mount Batten. As a result of the investigations in this study it is suggested that the site at Hengistbury Head did not cover as large an area as had previously been thought (Chapter Six). Many of the sites proposed in this study (e.g. Portland and Ower Peninsula in Poole Harbour) are of similar or larger potential extent so, if size is one of the factors that determined dominance, status or role in along- and across-Channel networks, it is likely that Hengistbury Head and Mount Batten were not the only focal sites, and, indeed, may even have been small or atypical examples of their class.

Chapters Three and Four set out the traits that identify coastal sites which were possibly used as Iron Age 'nodes' in the maritime network. This chapter reviews the results of the application of the 'physical traits' model of the coastal nodes and hinterland alongside the conclusions of the new excavation and survey work undertaken for the case study sites to determine possible functional relationships for different elements within the complex (9.2 below). The assessment of the model

[51] Particularly from the agriculturally rich south Devon area and local Cornish sites that exported the ceramic output of the Lizard, and minerals (including tin), etc.

will inform the structure of future work and focus further research attention. In addition, this chapter examines previous interaction models to consider how the Iron Age nodes might have operated within the coastal network (9.3 below) and provide a context of operation for the sites suggested in Chapter Five. The following sections first consider existing theoretical models to explore how the nodes might have interacted with the sites in their hinterland and with each other along the coast. The consideration is based on existing theories and models of social structure and interactions between groups and communities in the Iron Age. Following the assessment of those models from the perspective of the coastal sites, a new model of 'coastal node interactions' is proposed.

9.2 Interrogation of the physical model

The development of the model presented in Chapter Four, constructed to identify potential Iron Age coastal nodes, was one of the main objectives of this study. A list of nine 'physical traits' was established which outline the desirable characteristics for the location of an Iron Age coastal node:

- position on the coast with favourable tides and currents, and safe and easy entrance free from hazards at a location accessible from the known along and across Channel routes
- access to river/s was essential, often via a tidal estuary/harbour
- a promontory or headland location to serve as a sea-mark, demarcated area, and to offer shelter (to vessels on the water and facilities on land)
- the presence of a prominent land mark identifiable from sea (if not a promontory or headland location)
- shelter from winds, especially the predominant westerlies
- safe haven with good anchoring/mooring locations, often in a harbour, with space for manoeuvring vessels
- beaching points and/or formal waterside facilities such as jetties, quays or maintained hards
- the capacity for securely storing imports and exports
- the capacity for facilities to serve people and pack animals.

In addition, four elements were defined which comprised the 'nodal complex':

- the primary coastal site, usually associated with a river or estuary
- an offshore island, possibly connected by a causeway to the mainland
- local enclosures of certain or probable Iron Age date
- a high ground element (enclosure, hillfort) within a five kilometre radius of the coast.

However, not all traits or every element had to be present in order for a particular location to be considered a possible coastal node. The application of the model to the coast suggested 40 possible nodal sites (Chapter Five and Appendix One), each with different conformities to the traits and elements model (Table 5).

9.2.1 Origins of the coastal sites

Just as there is little uniformity to the coastline (see Chapter Five), so there are variations in the origins, scales, and uses of the coastal sites. It has been suggested above (Chapter Three) that late Iron Age contact along and across the English Channel was a continuation of earlier, Bronze Age interactions (see O'Connor 1980; Meyer 1985). As discussed above, many of the sites, including St Michael's Mount, Kingsbridge Estuary, Hayling Island, and Dover, had pre-Iron Age origins. Bronze Age structures, finds, and/or routes point to the antiquity of use of these places. It is suggested that the nodal function of the sites often evolved from an earlier settlement, as likely at St Michael's Mount, Bigbury Bay, and Bindon Hill. As suggested for the site at Bantham (Griffith 1986a, 48), a seasonal settlement to exploit the local resources evolved into a potentially key element in the coastal node complex. Similar cases for the reuse of a location through time can be identified at several of the smaller scale sites (for example, Hythe, Hastings, Lymington, and Otterton).

The use of locations as Roman ports or harbours has also been taken as indicative of an area's suitability for maritime use at that time and possibly earlier, in the Iron Age period of interest in this study.

9.2.2 Assessment of the components and their relationships within the 'nodal complex'

The coastal nodes identified in this study are of two forms: single site units, and multi-site complexes. Each site within a complex is an individual element or unit but with a spatial and inferred operational relationship to other elements in the complex.

The elements of the complex were identified in Chapter Four as comprising the nodal site situated on the coast or estuary, an island, local enclosures and high ground enclosures. Not all the elements need be present within a complex, and in some cases elements served more than one function. For example, the high ground enclosure might also be the nodal site (as might have been the case at Hastings or Seaford Head), or the main site might have been on the island (as at St Michael's Mount).

Whether the island was the primary site or an associated element, it served particular purposes. These have been detailed (see section 4.3) as serving as a land mark to vessels at sea (such as Burgh Island); providing a secure location for storage, transactions, or manufacturing (as on Green Island); and offering a further level of neutrality distinct from any territoriality which might be associated with mainland sites (as suggested by Pytheas for the island sites encountered on his voyage around the north-west of Europe (see Cunliffe 2001b; sections 3.3.1 and 4.3.2 above)). In maritime terms, the island may also offer sheltered havens or protect the approaches to estuaries or nodal sites, as at Bigbury and Looe. It has further been suggested that demarcated promontory sites might have offered the features of islands, as at Hengistbury Head and Portland, and sites such as Hayling Island and Selsey.

The majority of the enclosures currently listed in SMRs are undated as they have mainly been identified by aerial reconnaissance. However, Mount Folly (Chapter Eight) highlighted the possibility that these can be contemporary with the coastal node activity. If so, their proximity to the nodal site would suggest a possible association as part of the contemporary complex of elements.

As most of the coastal enclosures recorded on SMRs and considered in this study are currently only known as cropmarks there is little evidence available to define their function.[52] The purpose of enclosure varies but essentially was to demarcate an area for a particular use. That use may have been settlement, stock enclosure, defining curtilage, or space for a particular use – manufacturing, ceremonial, etc. (see Hingley 1990a; Collis 1996, 88-90). The function may have been defensive as well as demarcating, but the general slight banks of excavated earthwork enclosures suggest that they were not usually primarily for defence.

The enclosures associated with coastal sites were probably used for storage – especially at locations such as Furzey Island and Ower Peninsula where a large amount of cargo was passing through the main coastal nodes which would need to be ordered and stored prior to distribution to other nodes or into the hinterland. The enclosures could have provided secure areas near or at the node. They would not only store imports but also the goods moving out of the area that would be amassed at the coastal node prior to forward shipping.

A specific form of enclosure was recognized as a further potential element in the complex – the high ground enclosure (HGE). HGEs are defined here as embanked or ditched enclosures of both complex and simple forms on high ground. The inclusion of HGEs in this model provided a wider dimension to the function and role of the coastal node within contemporary society. Both HGEs and islands were included in the model as physical indicators of potential nodal locations, but it is suggested that they also had their own roles within the nodal complex.

The relationship between HGEs and the coast is examined here to determine the role the HGE could have played in the nodal complex. The HGE group includes sites which have been termed 'hillforts'. This class of monument has received much attention in Iron Age studies in past and ongoing debates but there are problems of dating the construction and use of the sites, many now being shown to have pre-Iron Age origins. However, Andrew Sherratt (1996, 217-8) has suggested that hillforts played a key role in the nodal networks and were constructed to command key traffic routes rather than to dominate their own territory. The varied interpretations

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[52] This is also the case for many extant earthworks. The function of an enclosure can rarely be determined without evidence from excavation which might not be conclusive, and as John Barrett commented, the "history of a defensive perimeter does not mirror the history of a site's occupation" *(footnote continued...)*

of hillfort functions are useful indicators of how many ways HGEs might have operated, and can now be examined with reference to the role of HGEs in the coastal complex.

The classification 'hillfort' is not a homogeneous category, but includes a wide range of sites, varying in scale, form and setting (see Hawkes 1931; Wheeler and Richardson 1957; Hogg 1975; Collis 1996). The common features are that they enclosed relatively high ground areas with banks and ditches that have, in the past, been interpreted as defensive. Often the actual locations are 'defensive', on steep slopes, promontories, or spurs. Promontory forts are a characteristic feature along the coast of western Britain, Ireland, and Brittany (Griffith and Quinnell 1999, 65), although Piggott attributed their prevalence in those areas to a "common response to geography" rather than any specific uniform social expression (Piggott 1979, 18). The high ground locations usually meant that the hinterland could be observed from the hillfort site and, as has been observed herein, most examples also overlooked the coast and land/river approaches. Whether they were defensive sites for permanent or temporary occupation or areas set aside for specialist use has been debated (Hill 1995a; 1995c; 1996; Collis 1996), and they may indeed have been both at different times.

The spatial proximity of the HGEs to the coastal node sites would permit the occupants to control and/or observe the flow of people and goods to, from, and along the coast. Imported goods received at the node could be stored at the HGE for redistribution; similarly goods for export could be manufactured at the HGE and gathered from the hinterland to be stored prior to export via the coastal node. If this is the case, this can be seen partially in terms of Cunliffe's 'central place' model (1993; 1994a) with the coastal nodes located within a territory dominated by the HGE element in both physical and social/economic terms. However, it is not suggested here that all elements of the central place model are relevant or applicable to HGEs or within the coastal node model (see 9.3 below).

Recently, new perspectives have been adopted to suggest alternatives for the development, use, and symbolism of hillforts (see Hill 1995c; 1996; Collis 1996) which might be applied to the HGEs. Such approaches have sought to offer

(1983, 427). For example, extensive excavation at Gussage All Saints (Wainwright 1979) revealed a large unenclosed settlement which was occupied prior to the construction of the ditched boundary.

interpretations related to a non-stratified Iron Age society. In his ground-breaking re-examination of hillforts and Iron Age society, J D Hill (1995c; 1996) suggested that the analysis of the excavation evidence from Danebury did not support the conclusion that the site was producing items or storing goods in quantities any different from the contemporary non-hillfort sites (contra Cunliffe 1993; 1994a).

Hill questioned Cunliffe's model of hillforts as the physical expression of power concentrated in a single location (Hill 1996, 101). He offered an alternative based on non-hierarchical society in which hillforts are defined as 'not farmsteads' i.e. they are different from the contemporary enclosed settlement type and instead mark special places by enclosing them. The main Iron Age social unit was suggested as the household – based in the farmsteads and simple enclosures found throughout the country. Against that picture, hillforts (and it is here suggested also HGEs), for communal use, would stand out as different (Hill 1996, 109).

In that model, hillforts were used not for social and economic control of people and things, but for periodic communal events and ceremonies, all probably involving exchange as well (Hill 1996, 109) both as an event in itself, and as a result of gathering for the other events.[53] The elaborate construction of the hillforts was not to reflect the power and prestige of an individual or elite minority, but the pride and cohesion of the community as a whole – as also suggested by Sharples (1991a; 1991b). The prominent locations of the HGEs associated with the coastal complexes matches that interpretation.

If Hill's 'not farmstead' model were applied to the HGEs of this study it could not be considered that the relationship with the coastal node was one of power or control: those things were not vested at the HGE. Instead, the relationship between the node and HGE would be spatially/topographically determined. The communal focus would be best constructed at a suitable location with easy access for the whole community. The coastal node would provide best access by river and sea for community members not in the immediate vicinity. The coasting advantages of the node would be paramount. Additionally, as the node would be used by non-community members, it would perhaps provide an opportunity to display community cohesion via the visible HGE.

[53] This reflects John Collis' suggestion that some embanked enclosures were constructed for 'display' and used for special ceremonies and communal gatherings (1996, 91).

The nodal complex model set out in Chapter Four incorporates HGEs as elements with features derived from both the central place and 'not farmstead' models which have been outlined above. The group that utilised the HGE could monitor the interactions at the coast and perhaps be involved in them. This does not amount to dominance emanating from the hillfort as in the central place model, as the coastal node, conducting along and possibly across Channel interactions, could just as well have been politically neutral (Hirth 1978; Peacock 1982, 81; see below).

9.3 Iron Age coastal nodes: a model of interactions

The previous section explored how the various elements within a complex might have inter-related. This section examines a wider scale to consider how coastal nodes might have functioned externally in order to provide a context of operation for the sites suggested in Chapter Five.

9.3.1 The origin of site interactions

In his consideration of Dark Age urbanisation, Richard Hodges (1982, 23) stated that if networks of nodes can be discerned, then the characteristics of those nodes can be defined. The existence of the nodes can be established by the study of settlement patterns and hierarchies, and the distribution of material goods between them (*ibid*, 25). The method adopted in this study is similar to Hodges' approach as it defined the physical characteristics of coastal nodes and used that information to identify their possible locations. The application of this process provided a preliminary corpus of site locations whose interactions or networks may now be studied in more detail.

The sites considered in this study were located at physically suitable points on the coast for access and use by land and sea. It is likely (and sometimes certain) that the advantages of such places had been recognised by the Bronze Age (before the period of this study) when maritime trade between Britain and the continent expanded, mainly in response to the demand for tin (Harding 2000). As the origin of many of the routes and places considered in this study was in the Bronze Age, so modes of interaction current in the Iron Age would have evolved from earlier systems, such as those outlined below.

Rowlands (1980) suggested that settlements on both sides of the Channel were part of a single system of interaction and exchange. He rejected the notion of a redistributive economy in favour of a more competitive model. Competition between communities for economic advantage at all scales of exchange resulted in a dominant position in the local hierarchy for some groups. This model is relevant to this study, as Rowlands particularly applied it to the Bronze Age elite in coastal and riverine settlements who formed long distance alliances and trading relationships, so perhaps setting the foundations for later Iron Age interactions. In addition, the model extended to the hinterland where inhabitants relied on a postulated trading settlement for the supply of metals, and in return would provide livestock and animal products. The hinterland sites were labelled 'marginal', dependent on the main site for access to the wider economy (*ibid*, 38). However, little attention had been given in that study to the specific coastal and hinterland sites which could have operated under this model. If Rowlands' model is accepted, the economic base of the coastal/riverine sites included specialist craft production, particularly metalworking, processing raw materials for exchange, and even the supply of labour with the skills and equipment for waterborne transport.

Timothy Champion (1999) reapplied Rowland's model to the late Bronze Age. During this period the output from specialist production and craft working (especially in the bronze industry) apparently increased. This created a demand for more raw materials that were limited in supply and unevenly distributed. This in turn generated an increased need for transport and distribution, required for both the raw materials and the finished goods. These studies combined suggest that the main nodal sites would also have a further specialist, possibly manufacturing, function. In the present study, the examination of the case studies (particularly Poole Harbour) revealed evidence for such production, both at the coastal focus, and within the immediate area.

The origin of such sites is important in considering the coastal network. Some nodes were already established, having evolved from Bronze Age use (although the continuity of use has not been demonstrated); others were newly developed, possibly to fill gaps in the network, to service a particular area with imports, or exploit the local resources and output for export.

9.3.2 Models of interactions in the Iron Age

The known Iron Age sites of Hengistbury Head and Mount Batten have been referred to as 'Port of Trade' sites (Collis 1984a, 21; 1984b, 161-4; Cunliffe 1987; 1988a), defined by Cunliffe (1988b, 5) as "a place set aside for commercial transactions giving protection to the foreign trader and usually situated at a route node such as a good harbour". Given that these have been considered the main coastal trading sites on the south coast, should that term be applied to all the major coastal nodes? The port of trade was defined in detail by Rathje and Sabloff (1974, 222) as:

1. located at a transition zone
2. a small political unit
3. supporting a large population
4. little concerned with retail distribution in the surrounding area.

The coastal nodes certainly conform with item 1: they are located at transition zones between maritime and riverine/terrestrial networks, and between external and internal systems. The second point was emphasised by Polanyi (1963) who saw the neutrality of the port of trade as a key feature; this was similarly stressed by Renfrew (1975). Polanyi additionally stated that ports of trade should offer security, facilities to anchor/moor and load/unload cargoes, storage facilities, and an authority and agreement on the items of trade. All these match with coastal node functions, but do little to explain the network between the nodes. The scale of population (point 3) at the nodal sites is variable: some sites would have supported larger populations than others. Point 4 is discussed below.

9.4 The application of gateway theory

Above, the application of classical 'node' theory to the south coast of Iron Age Britain has been discussed. There is however another theoretical model that is particularly helpful in understanding the pattern of late Iron Age coastal sites. The discussion of this point offers a valuable extra dimension to the conclusions of this research. This is the application of 'gateway theory' to the data gathered in this study. Gateway communities were initially proposed and modelled by geographers and adopted by economic anthropologists (Burghardt 1971). The model was later applied by Kenneth Hirth (1978) to explore inter-regional exchange and long distance trade in Mesoamerica, and has been suggested by Hodges (1982, 24) to have more "clarity" than the 'port of trade' model. Hirth (1978) drew from concepts in social geography to produce an archaeological model of 'gateway communities'. One criterion that Hirth identified for 'gateway' sites corresponds directly with the fourth defining point of 'port of trade' sites (see above) – that they did not necessarily operate as market places. He believed the 'gateway model' depicted early inter-regional trade more accurately than central place models that pervaded Iron Age studies at that time.

'Central place' models presume conditions which do not exist in the real world, such as the uniform distribution of population and resources. They were portrayed as dominant sites in the centre of a territory with a regular outline and uniform properties (population, resources, demand, and supply) in all directions. That contrasts with two significant criteria of the gateway model which positions sites near territory boundaries and incorporates "environmental discontinuities" such as naturally occurring, unevenly spaced corridors of communication and trade (Hirth 1978, 43) as important variables to help explain patterns of regional settlement. Gateway communities emerged along these natural trade routes at key points to control the movement of goods. That criterion is particularly applicable to the 'coastal node' sites of this study and it is suggested here that it corresponds directly with Renfrew's consideration of "effective distance" (1977, 72) (see section 2.2.4). For example, Hengistbury Head was located at a 'control point' on the natural routes of riverine and marine transport; it was at the edge of Durotrigian territory (see Mays 1984), so could function as a 'gateway' to/from it. The locations of similar sites (for example, Dover, Seaford and Newhaven, and Topsham) were identified in this study (Chapter Five and Appendix One).

The gateway model is appropriate to this study of coastal sites as a means of examining the relationships within and between the nodal units. Gateways developed on natural communication routes at key locations to control the movement of goods and people (Burghardt 1971; Hirth 1978). The similarity to the coastal nodes of this study is evident: they have been proposed at key points on the maritime routes and at interfaces with the riverine networks used to transport goods and people.

Gateways developed either in response to increased trade in an area, or in the process of settlement of sparsely populated areas (Hirth 1978, 37) - in other words, where there was a need for a nodal site to service increased or new trade. The maintenance of external trade links and economic relationships with the hinterlands meant that gateways needed to provide a secure environment for the supply of goods. In the case of these coastal sites, this would extend to security and comfort for vessels and crew, as well as cargoes. The coastal node sites have been defined here as safe havens, and were often areas associated with the secure, prominent earthworks on promontories, with associated enclosures, and even with island sites.

There are five factors in the model of gateway locations (summarised from Hirth 1978). They were:

1. situated on natural corridors of communication
2. key nodes between areas of high mineral, agricultural, or craft production
3. in an area with an adequate population to provide both the demand and supply of goods
4. where there was demand for or supply of scarce resources or those that were in high demand
5. often at the interface between different technologies or different socio-political units or complexities.

Beyond the five factors, there are two further elements that define a gateway location (Hirth 1978). First, that it is located at a position to minimise the cost of transporting goods. This meshes with one of the prerequisite characteristics of the nodal sites in this study which, by their very nature, are located to exploit the benefits of waterborne transport (see Chapter Three). Second, gateways "are located to one side of their hinterland" (Hirth 1978, 37). Some of the major coastal nodes identified in this study are at the extremes of group territories and the site's hinterland, e.g. Seaford (Site 8) near the border of the lands of the Atrebates and Cantiaci, Hengistbury Head (Site 17) at the eastern edge of the territory of the Durotriges, and Seaton (Site 22) near the boundary between the Durotriges and Dumnonii (see Cunliffe 1975, Figure 7.11 for tribal areas). It may even be suggested that by definition all the sites occupy extreme edge locations as they are on the coast, often at the end of extensive riverine networks - for example. Mount Batten, Topsham, and the lower Arun valley.

The edge location of some of these sites may have been deliberately reinforced in some cases by the 'monumentality' or impressive visual appearance of some of the structures at the node sites (e.g. the elaborate earthworks at Bindon Hill, the pairs of hillforts at the mouth of the Helford and Carrick Roads at Falmouth, or the 'Green Island causeway' structures in Poole Harbour). These are the first elements (the physical 'gateways') encountered when moving into territories, and would reflect the status or pride of the local community.

9.4.1 From the physical to the theoretical

It is currently understood that Iron Age Britain had many variations in social practices, settlement forms, and the styles and uses of material culture (see Haselgrove et al. 2001). As demonstrated by the coastal sites, the variations were in part due to differences in geography and topography along the coast. Differences in social forms may to some extent be attributed to the assertion of regional identities via group traditions, practices, and display. At a port site, particularly one operating at an inter-regional and/or international scale, the local community might easily become an amalgam of the various cultures/societies with which it interacted.

Social stratification in late Iron Age Britain has been detailed by many studies (including Cunliffe 1984c; Hill 1995a; 1995c; Collis 2001) which suggest that the exchange of goods with perceived status, including imports of 'exotic' items, stimulated more complex forms of social organisation. 'Gateways' emerged as specialist sites as society made the transition from reciprocal to redistributive economies (Hirth 1978, 35). By the late Iron Age, long-distance trade of 'exotic' goods – finewares, jewellery, new foodstuffs and wine, was firmly established in the economy, as well as exchange of local wares including shale items, salt, goods contained in coarsewares (if not the pottery itself), animal products, textiles (including products of the woollen industry such as the *birrus Britannicus* and *tapete Britannicum*), and possibly livestock. Strabo listed British exports of grain, cattle, gold, silver, iron, hides, slaves and hunting dogs (*Geography* IV.5.2). Trade was important to the socio-economic pattern, and the control of the flow of goods through sites such as gateways would have placed the communities who controlled those sites in positions of power/influence. Hirth commented that such communities would "flourish at the passage points into and out of distinct natural or cultural regions and serve as "gateways" which link their regions to external trade routes" (Hirth 1978, 37).

If the above scenario is accepted, the control of the coastal nodes would be of great importance to the regional group. As discussed above, nodal sites can be perceived as neutral (Hirth 1978; Peacock 1982, 81) – whether as an independent port of trade or a neutral island site – but the characteristic of neutrality need not conflict with the 'gateway' function and may be another reason why the nodal sites were located at territorial boundaries.

Many of the nodal complexes considered in this study contained either an island or promontory element. It is suggested that those places in particular were perceived as distinct and neutral, either to perform particular activities (such as manufacturing on Green Island) or in the socio-political sense (as at the promontory of Hengistbury Head which was defined by earthworks and perhaps perceived as an 'island', distinct from the surrounding territory of the Durotriges). The perception of islands and promontories as neutral and distinct places in those ways was observed by Pytheas at locations in the Mediterranean. He described that they were treated as safe places and perceived as neutral territory in which to conduct the transactions of exchange (see Chapter Three). A politically neutral gateway would still be reliant on sites and groups in the hinterland to provide the demand for the imported goods and supply goods and materials for export.

It has been suggested that Hengistbury Head was indeed distinct from the lands of the Durotriges as it was an enclave of Gaulish traders (Fitzpatrick 2001, 89). As such, it would not be under Durotrigian control but operated independently (neutrally) on the edge of their territory, offering some support for the criterion of political neutrality advanced by Peacock (1982, 81) and Hirth (1978). A similar situation can be suggested for Selsey. It was within the area where Belgic immigrants settled (as recorded by Caesar (*de Bello Gallico* II.14)), on the eastern edge of the southern central sector and within the interaction sphere between the Atrebates, Regni and immigrant Belgae.

The gateway communities effectively operated as "middlemen" (Hodges 1982, 42), linking their hinterland to the wider nodal network. This is another respect in which the gateway model differs from central place theory. Central places emphasise economic activity (trade, redistribution, etc.) within a region/territory, whereas a gateway links networks between regions. It is important to recall Hodges' assertion that neither ports of trade nor gateway sites have to be a market place (Hodges 1982, 25): they serve as transition nodes, not market places.

Rather than the uniform arrangement within the central place theory, gateway hinterlands are described as "elongated fans" (Hirth 1978, 37) that radiate outward, like branches (dendritic networks), from the site. This can be well illustrated by many of the coastal nodes whose hinterlands are located along estuaries and radiating river networks which indeed appear to fan inland from the coast.

John Collis defined dendritic systems as "developed for the exploitation of a peripheral area by means of a linked system of nodal points" (1984, 21), in which the primary node was "usually a port, linked to one or more secondary centres, themselves connected to tertiary points" (*ibid*). Collis suggested that Colchester in the early first century AD and the Greek colony at Marseilles were examples of primary nodes in simple dendritic systems which were less exploitative than more recent ethnographic examples (*ibid*). It is suggested that the coastal nodes operated not in an exploitative, but in a reciprocal fashion with each other and the sites in their hinterland (for example, Poole Harbour).

Just as individual communities through the hinterland were linked to the gateway, so the small, intermediate nodes were linked to the main nodes by a linear path along the coastal route. This is illustrated by Hirth (1978, 38; Figure 1) and envisaged as the nature of the links between the nodal sites considered in this study (Figure 77).

Collis' definition of primary, secondary and tertiary nodes in the dendritic system has parallels with the 'scale of operation' envisaged for the coastal nodes (Figure 77). However, it is not possible on present evidence to assess whether the nodal sites identified in this study exhibited purely dendritic relationships. It is suggested that instead there may have been a reciprocal relationship with two-way traffic between the nodes (similar to the 'port of trade' model). It is postulated that the primary coastal nodes were those engaged in national and international networks and probably conducting trade or exchange at those scales. It is suggested that each of the sectors discussed here had at least one primary node: probably Dover in the south-east, Hengistbury Head in the central sector, and Mount Batten in the south-west. Other potential primary sites are listed in Appendix One. Secondary coastal nodes may have received imports from the primary nodes and distributed those to other sites in their hinterland (including the tertiary nodes), and also received goods from the region in which they were located. They could have functioned as gathering points for goods from the hinterland and imports from other areas, arranging the onward distribution of what would normally be small amounts of the imports and large amounts of the exports. They would also have provided infrastructure facilities for all those passing through in the exploitation of their entrepôt role. It is possible that some or all of these sites (for example, Poole) were also involved in the manufacture of goods for export (utilising raw materials from the hinterland and from the immediate vicinity if available). Tertiary sites included the safe havens and stop-over points on the coastal networks which were not necessarily primarily involved in trade, but may have supplied goods (including agricultural produce and raw materials for manufacturing processes) to the secondary nodes and received small amounts of goods in return.

The gateway model proposes hierarchical dendritic networks that are matched by the model in this study of small nodes feeding goods to and receiving goods from the larger nodes. However, the gateway model is almost entirely vertical with little connection between the gateways of similar size/status. Here the coastal node model developed in this study differs from classical gateway theory as there is evidence of links between the major nodes. Goods from Mount Batten have been found at Hengistbury Head (including ceramic and minerals from the south-west region); material from Poole Harbour moved west via the south-west nodes (particularly the ceramic products (see Allen and Fulford 1996)). However, although the nodes were linked by the exchange of artefacts, there is no presumption that they were linked in the same social or political units or systems and there appears to be no evidence yet available that this was the case.

Thus, 'coastal nodes' are not defined as pure gateways, but exhibit similarities with the gateway model, as dendritic nodes with port of trade characteristics and advantages of best transport costs. How these might have functioned can now be examined with reference to the relationship of two substantial coastal node sites, whose proximity at first sight poses some questions in the application of a general model.

9.4.2 Poole Harbour and Hengistbury Head: neighbouring nodes

The case studies demonstrated that the nodal functions are evident at both Hengistbury Head and Poole Harbour on local, national, and international scales. Table 9 demonstrates the relationships between the episodes of peak activity and indicates that there is a close correlation between the chronologies of use of both the areas which are 15 km distant. As it is unusual for two major nodal centres to operate in such close proximity, especially as they both lie within the territory of the same tribal group, the Durotriges, together they provide an interesting example by which to examine how two neighbouring nodes might have interacted.

The similarities in function attributed to both sites have been determined; however, it is the differences between them that indicate why they could have operated contemporaneously. The main topographic difference is the inland areas which are accessible from each site. Poole Harbour was linked via the rivers Frome and Piddle to west Dorset; Hengistbury's links were to north Dorset and Wessex via the Avon and Stour. Previous studies (Cunliffe and de Jersey 1997; Fitzpatrick 1991) stated Poole Harbour was subsidiary to Hengistbury, but the fieldwork results of this study from both sites permit some reassessment of the relationship between the two.

It is unlikely that two major ports, located so near to each other, would have independently served international vessels, so it is possible that Hengistbury Head and Poole Harbour worked in a complementary fashion. Each gathered goods from their respective hinterlands and one coasted goods to the other that operated as the main ('primary') international node. Similarly, imports were received at the international node and certain of them were coasted to the other ('secondary') node for onward distribution by sea or via the inland networks. This corresponds to the horizontal dendritic links proposed by the gateway model. If the two sites did operate in tandem, Poole Harbour, with its elaborate structural features and attested links with the south-west (Allen and Fulford 1996; Holbrook 2001; and suggested by the finds recovered from Green Island) could have been the primary port. Hengistbury served the Wessex region and use of the port declined as the focus on that region diminished in favour of the south-east and its increasing contact with the Roman world. Poole and Ower continued to attract international trade vessels and imports, possibly because the links with the south-west were less affected by the rise to dominance of the south-east.

It has been shown (Chapter Six) that Hengistbury Head was not as large a site as had been proposed, whereas new evidence from Poole (Chapter Seven) has shown that it had major features and activity zones suggesting that it could have been the principal site in the pairing. In addition, it benefited from a direct riverine route to the area of Maiden Castle, which is considered to be the 'tribal capital' of the Durotriges. The decline of Hengistbury may have been due to natural silting of the harbour, but silting and sea-level change did not discourage use of Poole. The large scale movement of settlement from Furzey Island to Ower and then relocation to Hamworthy suggest that the port function was worth maintaining at Poole: from its origins on Furzey and Green Islands that function has continued to the cross-Channel passenger and cargo port of the present day.

It has been demonstrated above that the coastal node sites identified in Chapter Five can be assessed for modes of interaction both within the nodal complex, and between different nodes along the coast. Those interactions do not conform to the traditional perception of Iron Age relationships based on the core-periphery model. Instead, this study has highlighted the fact that the identified sites served as transition nodes between different networks (coastal and inland) and, in the case of the primary and perhaps the secondary sites, between international, national and regional networks. The small, tertiary nodes provided safe haven and stop-over points for vessels on the coasting routes, and provided local goods for onward shipping to the larger nodes, perhaps also receiving goods from the ships at the same time. In this way the model of coastal nodes presented here is a combination of gateway theory, port of trade criteria, and characteristics of Hill's 'not farmstead' model. The model suggests reciprocal links within the nodal complex and between the nodes along the coast. The implications of this model for future Iron Age studies are explored further in Chapter Ten.

Chapter 10
Conclusions

10.1 Introduction

The topics considered in this thesis have been explored through many means – documentary, digital and exploratory. Sources utilised include excavation reports, new excavation data and field study results, comparisons of imported and local artefacts, distribution plots of artefacts and sites, considerations of theories of trade and exchange, socio-political structures, contemporary maritime technologies, nautical factors, and potential shipping routes. The study of the Channel coast was approached on a regional basis (as advocated in the proposed Iron Age research framework – see Chapter Two and Haselgrove et al. 2001). The physical nature of the Channel coast was defined in Chapter Three, which illustrated the variety in form of the coastal zone and supported the adoption of a regional approach. All the information compiled in this study was combined to answer the key question: where are the British coastal sites which were linked in the maritime network along and across the English Channel between 500 BC and AD 50?

The main focus of earlier studies of prehistoric interactions was on trade, particularly the artefacts involved in trade – where they originated, where they were found, and how they might have arrived there. The question driving this study was approached both from such traditional considerations of artefacts and their distributions, particularly with attention to imports, and from the alternative perspective of the sites themselves. For this study, the postulated routes along and across the Channel have been considered, as well as the relationships between different areas or groups which can be inferred from finds of imported material.

This final chapter draws together the threads of the argument that emerged from the evidence presented in previous chapters. The main conclusions are offered as a summary and synthesis, particularly of Chapters Three, Four and Five. It closes with suggestions which consider how these results may engender and inform further work.

10.2 Summary of the study process

Previous studies have suggested that it is not possible to identify trading points in the Iron Age maritime network as they were little more than informal beaching places which could not be recognised in the archaeological record (McGrail 1993; Fitzpatrick 2001). The foundation of this study was to explore that suggestion and to determine whether Iron Age coastal nodes could be characterised and, if so, to identify where those characteristics occurred and thereby identify the possible locations of the coastal node sites.

The process to achieve that undertaking was set out in four stages. First, a review of previous studies was carried out to determine what was known of maritime networks and coastal interactions and the nature of the coast in the Iron Age. It was apparent that a solely land-based perspective would critically limit the study. The investigation was therefore expanded to consider maritime requirements, including the types of vessel which travelled the coastal and riverine networks, the maritime routes that were known or inferred from the Iron Age, techniques of navigation, and considerations of natural elements including tides, currents, and hazards to shipping. The information gathered from the review was compiled and condensed into traits and elements which were combined into a model that characterised coastal sites from both terrestrial and maritime perspectives.

The third stage tested the model by its application to the coast from which 40 possible sites were identified. Three of the identified sites, Hengistbury Head, Poole Harbour, and Bigbury Bay, were selected as case studies for further investigation by desk-based research, geophysical survey and, at Poole Harbour and Bigbury Bay, sample excavation. The results of the case studies and site analysis indicated that not all 'coastal nodes' were large, international ports, and it is suggested that the coastal network comprised nodes of different sizes – both physically, and in their scale of operation. It is therefore concluded that, contrary to the earlier suggestion, Iron Age coastal nodes can indeed be identified from the recognition of physical and archaeological characteristics.

In order to explore the usefulness of the identification of the coastal node sites, the fourth stage of the study considered the theoretical modes of nodal interaction.

That was undertaken with reference to earlier anthropological and archaeological studies of social networks and the role of nodal sites which were applied to the sites identified on the coast (also see 10.4 below).

10.3 The physical arena of coastal interactions

This study has highlighted that, in comparison with the multitude of artefact studies and economic models, a lack of attention has been given to the physical arena of coastal interactions – the sites where trade, exchange, and other forms of contact occurred. The review of prehistoric port studies confirmed that previous models of Iron Age interactions, particularly maritime trade, had concentrated on Hengistbury Head and Mount Batten as the exemplars of ports. This had created the general assumptions that all Iron Age coastal sites were either the same as those two (which were perhaps erroneously considered to be large sites and typical port examples), or did not exist as formal ports at all as vessels would have made use of informal beaching points which are not identifiable archaeologically. Those assumptions can now be eliminated from considerations of the Iron Age coast as instead the situation has been demonstrated to be more complex, with a variety of site types and sizes. Furthermore, close examination of the limited amount of excavated or surveyed evidence for known sites proves that in fact formal infrastructure (hards, jetties) is frequently found.

The choice of coastal site location has been shown in this study to be heavily influenced by the natural physical constraints of topography and geography, as well as the fundamental requirements of a location to serve shipping safely and securely, handle cargo, and accommodate people, animals and goods. The physical characteristics required of a coastal site were identified and compiled in Chapter Four into a two-part model to identify places on the coast which exhibited those traits. Included in the model were considerations not only of land-based requirements, but also the requirements of vessels navigating along and across the Channel. The model was applied in Chapter Five and 40 possible sites were identified (see also Appendix One). The sites were classified as 'definite', 'probable' and 'potential' depending on the degree of correlation with the model.

In addition to the identification of the coastal sites, a generalised model identifying a 'complex of characteristic elements' was developed. This was constructed from the observation of recurrent site types or elements found generally within five kilometres of the coastal site. For example, it was perceived that clusters of high ground enclosures near the coast might signify the presence of a coastal site. The recognition of the 'suite of elements' was then used to consider further coastal sites and identify potential nodes. The complex comprised the elements of the coastal site, local enclosures, offshore island, and high ground enclosures. Not all elements were necessarily present, but a combination of the different components was observed within five kilometres of all 40 sites identified in this study.

It was also observed that manufacture of items for export was undertaken at many of the coastal nodes. For example, the production of shale armlets at sites in Poole Harbour, and pottery output from sites along the Helford estuary, were undertaken at scales in excess of those required to supply the local area. The link between manufacturing and coastal relationships will benefit from further study.

The physical model was tested in Chapter Five and found to be effective as 40 locations were identified on the English Channel coast which conformed to the criteria expressed in the model and, on further investigation (Chapter Five and Appendix One), were considered viable sites within the Iron Age coastal network.

The model was tested further by the detailed investigation of three of the 40 sites as case studies. One site from each classification was examined – Hengistbury Head ('definite'), Poole Harbour ('probable') and Bigbury Bay ('potential'). The results of those studies (Chapters Six, Seven and Eight, respectively) suggest that the construction of the model was valid as each site was recognized as a likely component in the coastal network.

This study has demonstrated that, far from existing solely as a series of ephemeral, casual beaching points, the maritime network of 500 BC – AD 50 consisted of identifiable nodes, of different sizes and forms. They range from small coves and sheltered beaches used for local traffic and as safe havens and stop over points on coastal voyages (for example, Mullion), to sites with features and the capacity to accommodate regional and inter-regional coasting traffic (including Shoreham and Helford), to large sites engaged in inter-regional and possibly international connections (for example, Dover, Poole Harbour, Portland and Topsham), as well as the known sites of Hengistbury Head and Mount Batten.

10.4 The conceptual arena of coastal interactions

The review of previous studies highlighted the lack of attention given to the actual sites of coastal interactions, which were generally considered within studies of trade or the movement of artefacts. Consequently, there has been little attention to the theoretical consideration of how the coastal sites might have interacted, although Andrew Sherratt (1996) provided a basis with his consideration of riverine nodes.

It has been shown (Chapter Two) that in the development of archaeological theory, models and interpretations of the mechanisms of artefact movement closely synchronized with prevailing socio-political conditions. Working forwards from antiquarian observations, the flow of reasons for the artefact movements has run through invasions, migrations, trade, and the reinforcement of socio-political systems. There is, however, a significant question as to how far the carefully plotted distributions reveal movements of people or the movement of goods. Distribution plots, beyond all else, show where archaeologists have looked.

Previous studies (for example, Harding 1993; Cunliffe 1994a; Champion 1999) have suggested that access to imported or 'exotic' goods was of considerable social significance. The control of the production, acquisition, distribution and trade in such items is considered fundamental to the foundation and continued status and political control of the dominant group from the Bronze Age and through the Iron Age periods. Many of the coastal nodes considered in this study were involved in manufacturing as well as distribution and exchange.

The sites identified in Chapter Five are considered to have operated contemporaneously within the mid-late Iron Age coastal node network, but at different scales of operation and, it is likely, under different systems of authority or control. However, it was concluded that a general model could be drawn of how the sites interacted both within their hinterland complex and with other nodes in the coastal network. The nodes were defined as 'interaction' points, often where the maritime and riverine networks connected. Chapter Nine explored previous archaeological and anthropological studies of nodal networks and site interactions. It considered theories of central place, port of trade, gateway site, and 'not farmstead' to assess their applicability to the coastal node network formed by the sites identified in this study.

It has been demonstrated that a combination of some of the above theories can usefully describe how the coastal nodes could have interacted, particularly drawing on elements of gateway theory and the 'not farmstead' model. In this way, it was suggested that the nodes exhibited reciprocal relationships with sites in their hinterland and with each other. In addition, the 'inter-node' relationships could be further characterised by the application of John Collis' (1996) consideration of primary, secondary and tertiary nodes (defined here as the 'operational scale'). Nodes of the same operational scale exhibited horizontal links between each other, and vertical (hierarchical) links with those of other scales.

The primary purpose of this study was to determine whether Iron Age coastal node sites could be characterised and thereby identified. That purpose was achieved, and the identification of 40 possible node locations provided a corpus of information from which the nodal relationships could be considered. However, at this early stage of coastal node studies, the conclusions regarding the model of coastal node interactions must be considered tentative. Further investigation will determine whether the model continues to be applicable.

10.5 Future research

10.5.1 Research derived directly from this project

In answering the questions posed in Chapter One, further questions have been raised, some of which were approached within this study (including how the identified sites might have interacted), others are now planned as direct follow-on projects, and the remainder will benefit from investigation in the future. Many of these aspects are outwith the planned scope of the present project, but the results of this research are already informing the development of further research projects.

Further work which is currently planned arose primarily from the case study research. Continuation of the investigation has been confirmed at Mount Folly, to be undertaken in autumn 2004 and spring 2005. That will include an extension of the excavation and survey programme initiated in this study and is designed to clarify the dates of the hill slope enclosures, the character of other features at the site, and the relationship with activity on the coast of Bigbury Bay.

As a result of the successful geophysical survey at Mount Folly, other coastal enclosures which were identified by the Devon County Council Aerial Reconnaissance Programme in the South Hams will be investigated by geophysical survey in 2004/5. This will provide further detail for each enclosure site, help assess whether there is a discernible pattern to the locations and layout of the enclosures in the vicinity of the coast, and be useful in determining whether further investigation should be considered at any of the locations.

At Poole Harbour, plans are in preparation for the detailed examination of other areas of the harbour littoral, particularly Fitzworth (where Calkin identified Iron Age artefacts) and further investigation at Ower Peninsula to include geophysical survey and excavation to determine the extents of the settlement and activity areas. Examination of those places is designed to further assess the proposition in this study (section 7.5.4 above) that the 'jetties' in South Deep were in fact control points from which access to the inner harbour, port facilities, riverine network and hinterland sites could be monitored. Direct investigation of the 'jetties', in association with the Poole Bay Archaeological Research Group, will continue in 2004 and 2005.

10.5.2 Wider areas for research

This study has provided a basis for consideration of 'gateways' within the mid-late Iron Age maritime network on the south coast which can be used as a context for further studies of along and across Channel interactions. As well as further work at the identified sites, it will also be necessary to examine the areas between the sites. No sites have yet been identified on the stretch of coast between Portland and the border with Devon, but it is considered here that the area, particularly at Abbotsbury (where there is an Iron Age hillfort and an association with the place-name 'St Catherine' at a hilltop chapel), might benefit from further study.

The contribution of this investigation to Iron Age studies has been in the context of the Iron Age research framework (see Haselgrove et al. 2001) – to investigate areas outside the 'over-privileged' south-east and Wessex (*ibid,* 23) and to examine interactions between the regions. However, the model constructed in Chapter Four to characterise and identify 'coastal node' locations is also applicable to periods other than the Iron Age and can be applied to other coastal areas, not just the English Channel.

The model of 'coastal node interactions' presented in Chapter Nine is also a subject for further research. A reconsideration of the model and its main bases, particularly 'gateway theory', will determine whether it is more widely applicable beyond the south coast of Britain.

In the course of this research it was observed that, whereas the basis of this study was the archaeology and geography of coastal sites, the combined terrestrial and maritime perspectives also introduced elements that can best be considered by adopting a phenomenological approach. It has not been possible to address these within the current study but it will make a useful subject for future research which the writer is hoping to pursue. Analysis of the series of consistent characteristics associated with the nodal sites might inform our understanding of the view taken by later prehistoric travellers of the land from the sea. The contemplation of voyages will include consideration of both terrestrial and maritime features. Journeys by sea rely on a different set of indicators from land-based travel including water colour, depth, nature of the sea-bed, and other often subjective signs to guide the passage. Landmarks and seamarks are important navigation aids and, at the coastal node, artificial structures such as jetties, quays or hards often dictate the direction of movement through the bay or harbour area. Once on land the journey might continue from the coastal node by track or by river to other sites within the 'nodal complex' or further inland. A phenomenological approach to the consideration of movements through the nodes from the sea to the land, and vice versa, would also be of value to studies of interactions between nodes and other sites in the landscape.

Other areas of research which will be of benefit to the study of coastal interactions include the investigation of resources exploited in the coastal zone, particularly the examination of salt-production sites and processes (an initial assessment has recently been prepared by S Hathaway (2003)), and petrological examination of pottery to determine the original clay source (which is currently being undertaken by H Quinnell and R Taylor for material in the south-west region). In addition, the development of a method to determine the source of shale would be of great benefit, particularly when considering the origin of items found in north-west France. Work on this has recently commenced at Exeter University (H Quinnell, pers. comm.).

10.6 Concluding remarks

This study has presented a new view of the English Channel coast of Britain in the late Iron Age, in the physical description of the coast, the consideration of how the Channel was used, and the identification of possible sites of interaction in the coastal network.

The four questions posed in Chapter One have been answered. Criteria were determined which characterised coastal sites and identified 40 possible node locations. The nature and extents of those sites have been investigated where possible, and a model of coastal node interactions has been developed.

Pre-requisite for the evolution of a location into a coastal node was the appropriate physical environment which was suitable for use by maritime traffic. However, as outlined in Chapter Three, it is generally agreed that maritime routes determined where key coastal nodes were located, giving due regard to the physical requirements and topographic characteristics. In those cases, sites developed at locations suitable for maritime traffic and trade. This appears to have been the origin of many of the larger sites such as Poole Harbour and Mount Batten. The natural advantages of these sites for shipping meant that facilities and settlements were established to serve the needs of the maritime traders. The previous suggestion of only informal beaching sites located between large, international ports, cannot be sustained. Instead a network of coastal node sites with recognizable features has been suggested. By the late Iron Age, a network of established sites was operating along and across the English Channel. These provide the physical and spatial context for interactions and relationships along and across the Channel, expressed via trade and the exchange of goods.

In conclusion, the study has shown that it is possible both to identify and characterise nodal sites in the coastal network. It has suggested that the former emphasis on Hengistbury Head and Mount Batten as typical Iron Age port sites should be reconsidered, as Iron Age ports and coastal nodes took different forms and operated at different scales. The method developed to identify and explore the nodes and relationships between them is applicable not just to the Iron Age but emphasises the importance of integrating perspectives from both the land and the sea. It has been shown that the archaeological recognition of Iron Age coastal nodes is possible and that the consideration of those nodes provides useful information in the wider context of the study of along- and across-Channel interactions.

IRON AGE MARITIME NODES ON THE ENGLISH CHANNEL COAST.

AN INVESTIGATION INTO THE LOCATION, NATURE AND CONTEXT OF EARLY PORTS AND HARBOURS.

EILEEN WILKES

A thesis submitted in two volumes in partial fulfilment of the requirements of Bournemouth University for the degree of Doctor of Philosophy

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October 2004

Bournemouth University

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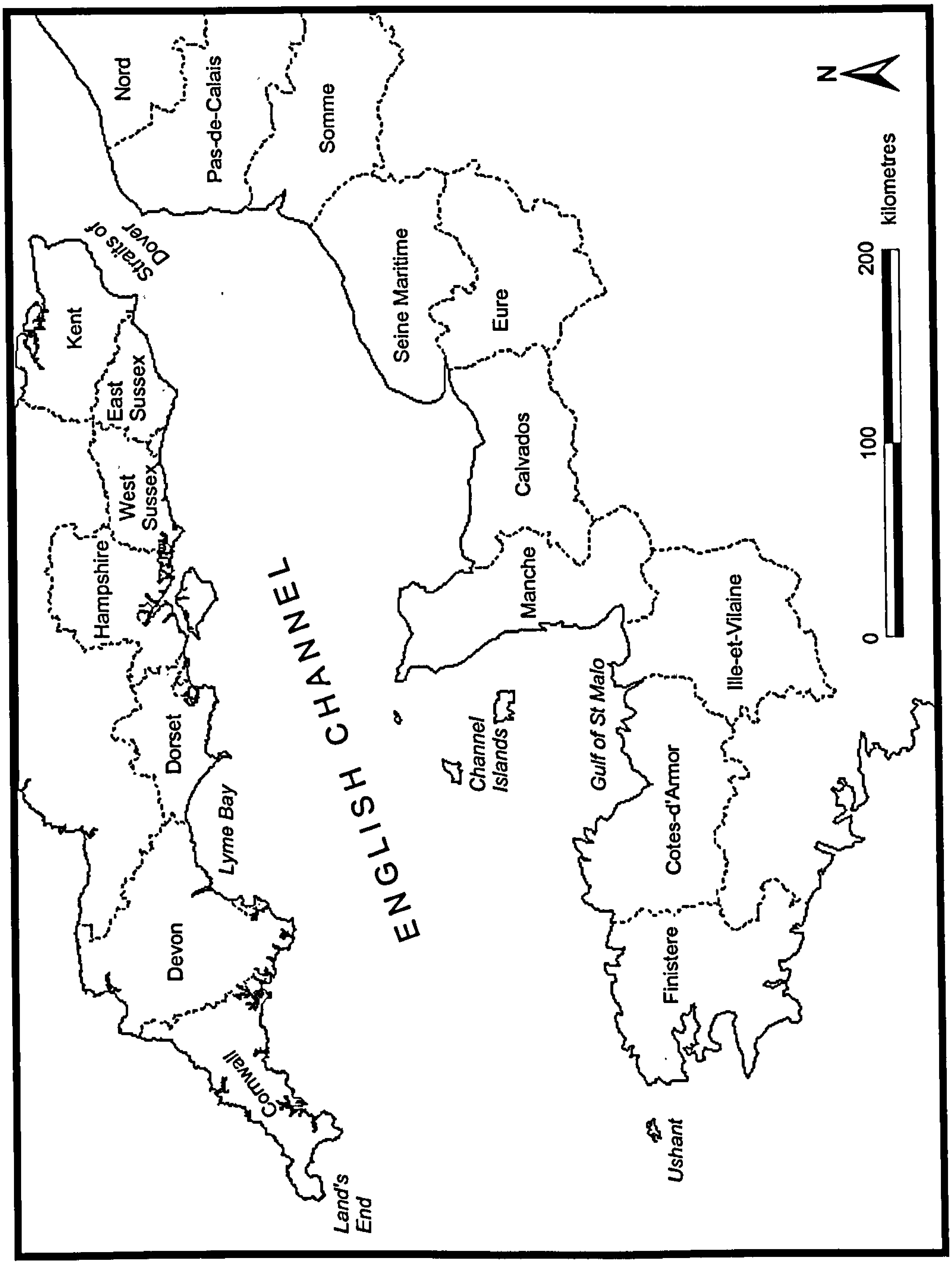

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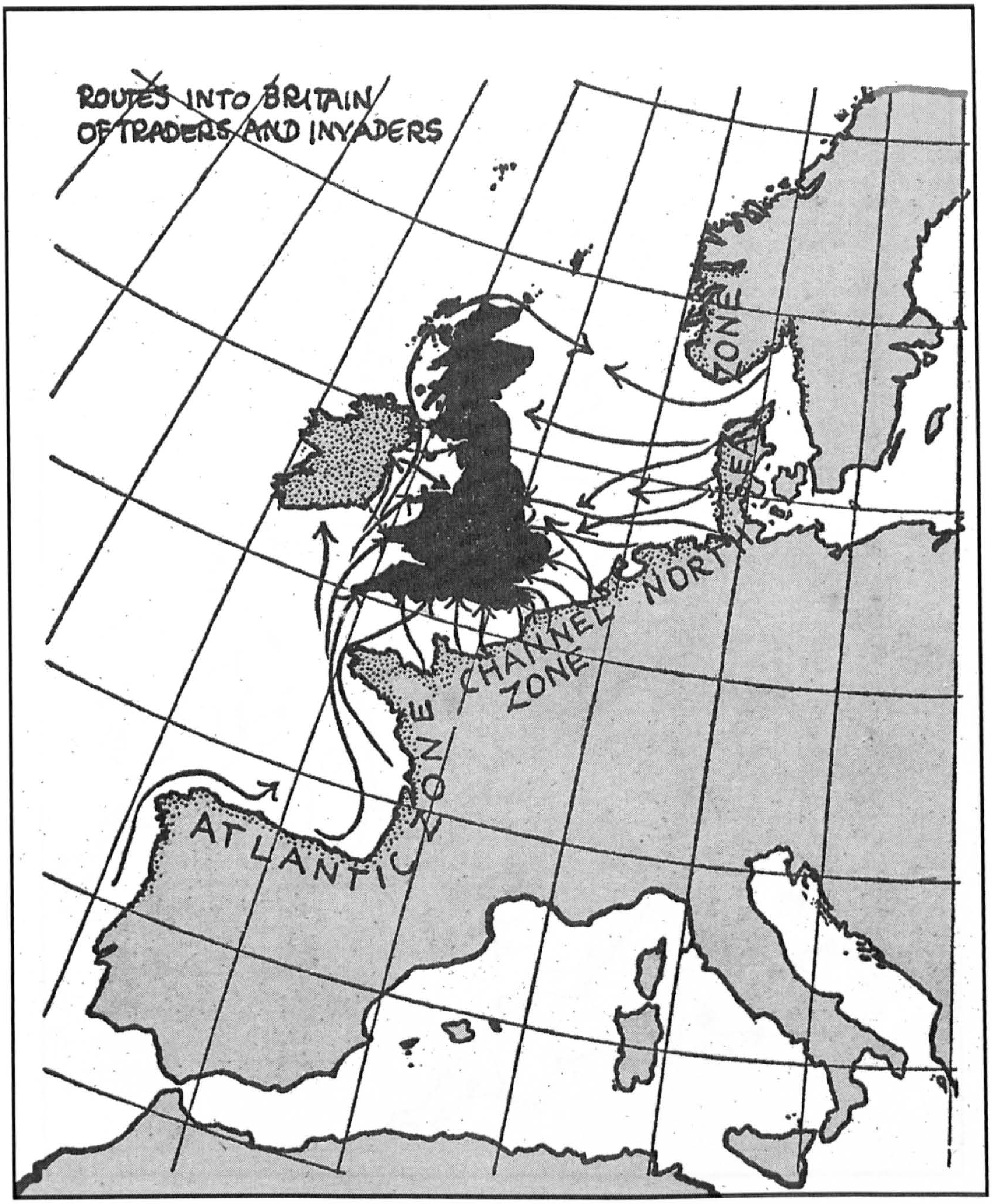

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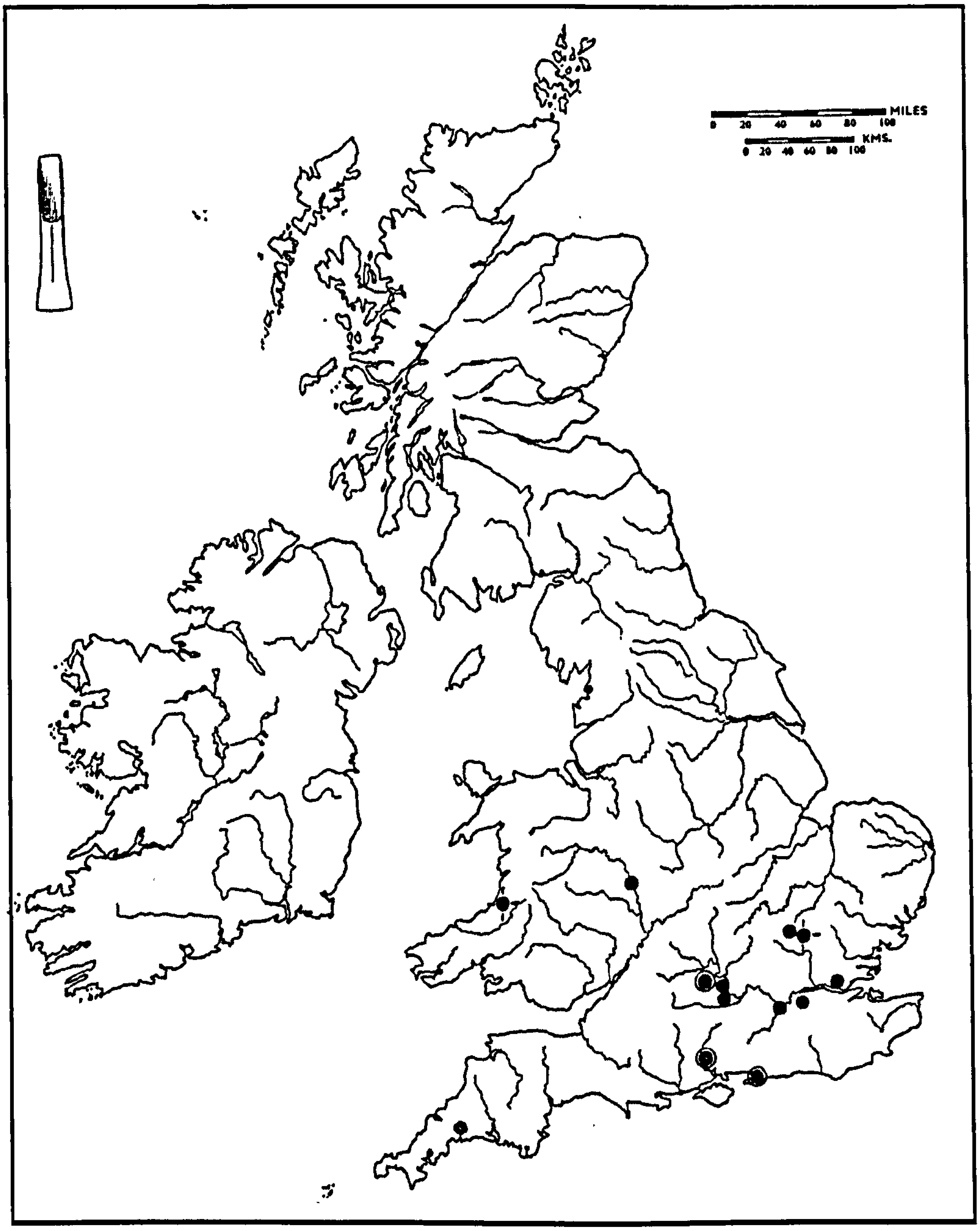

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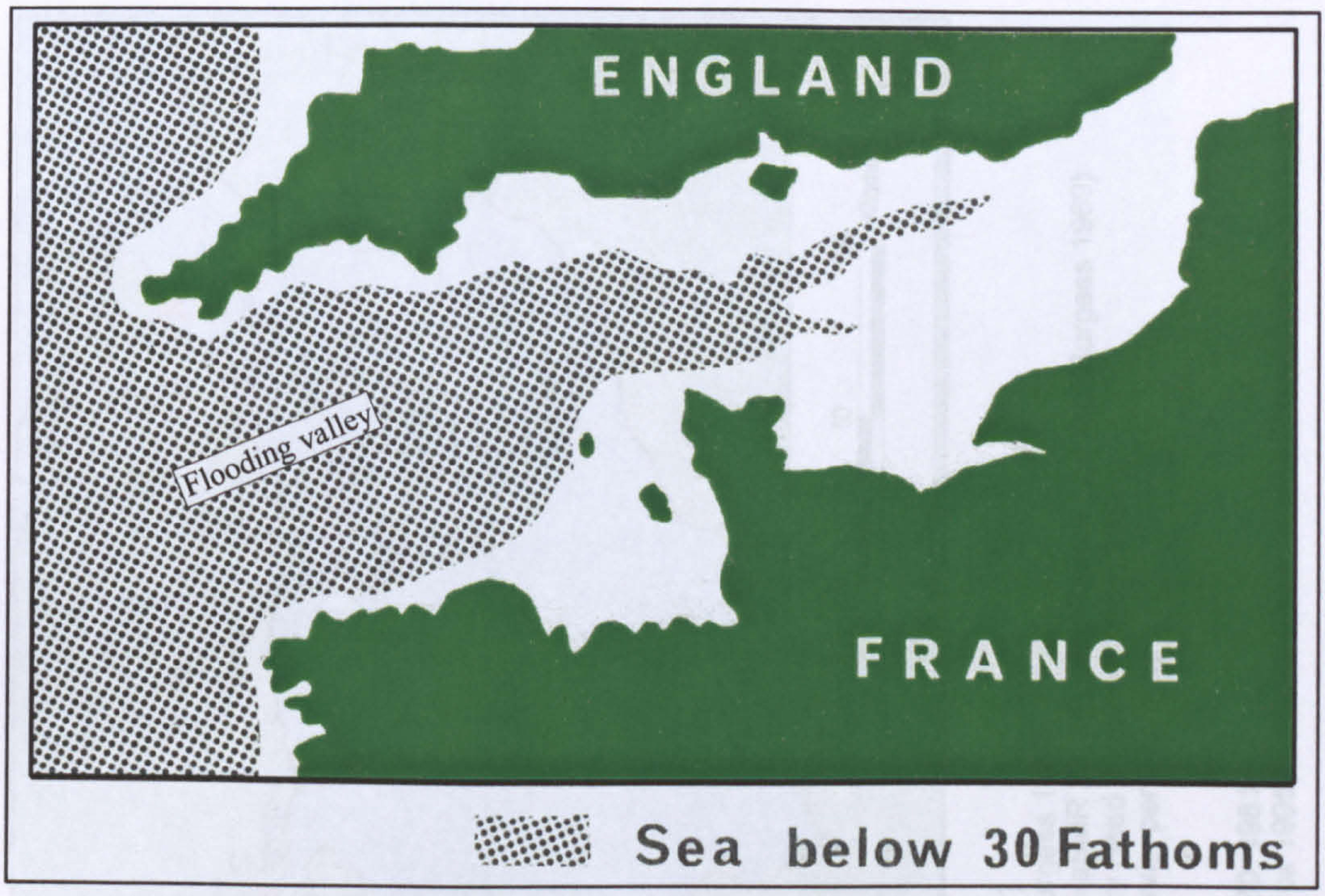

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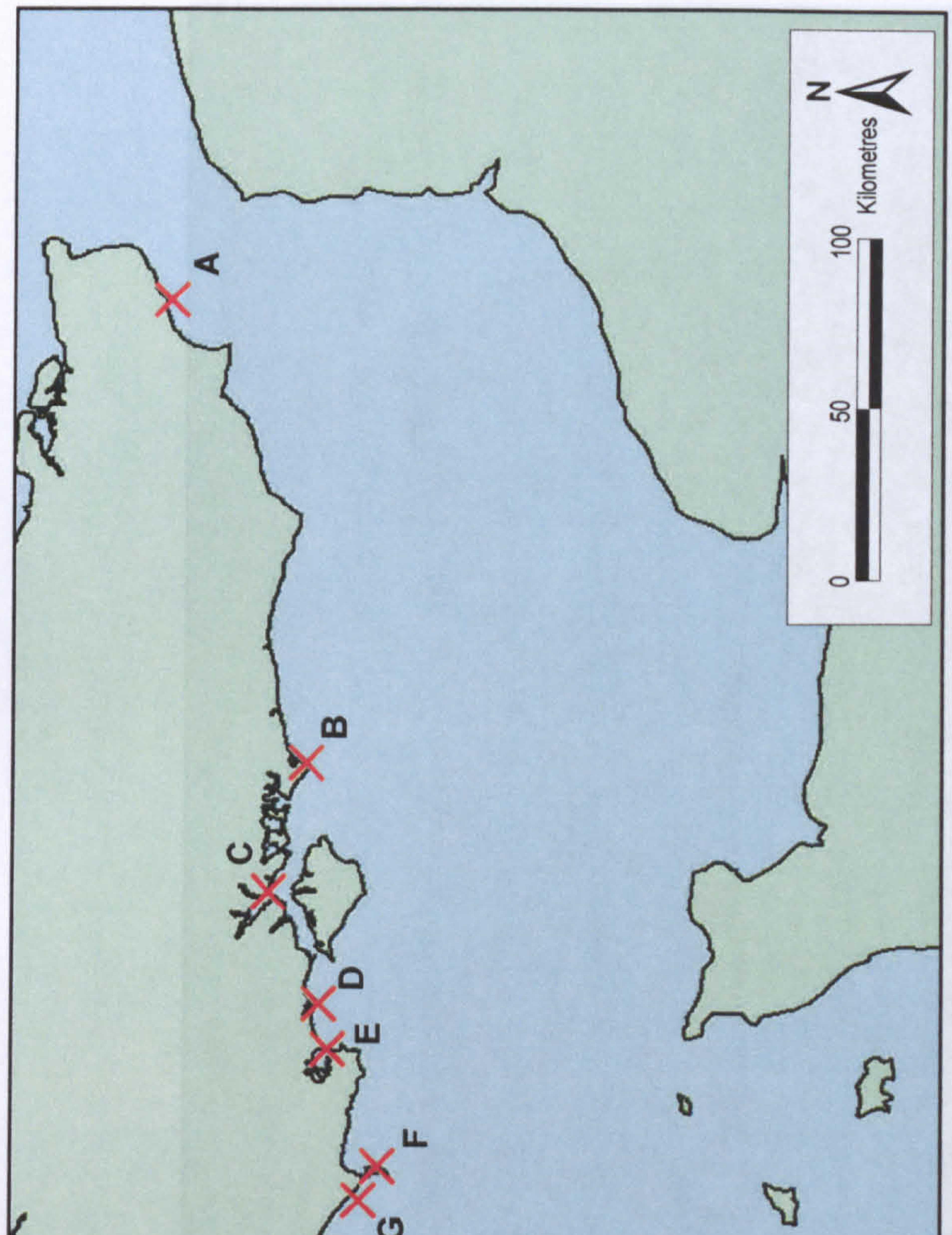

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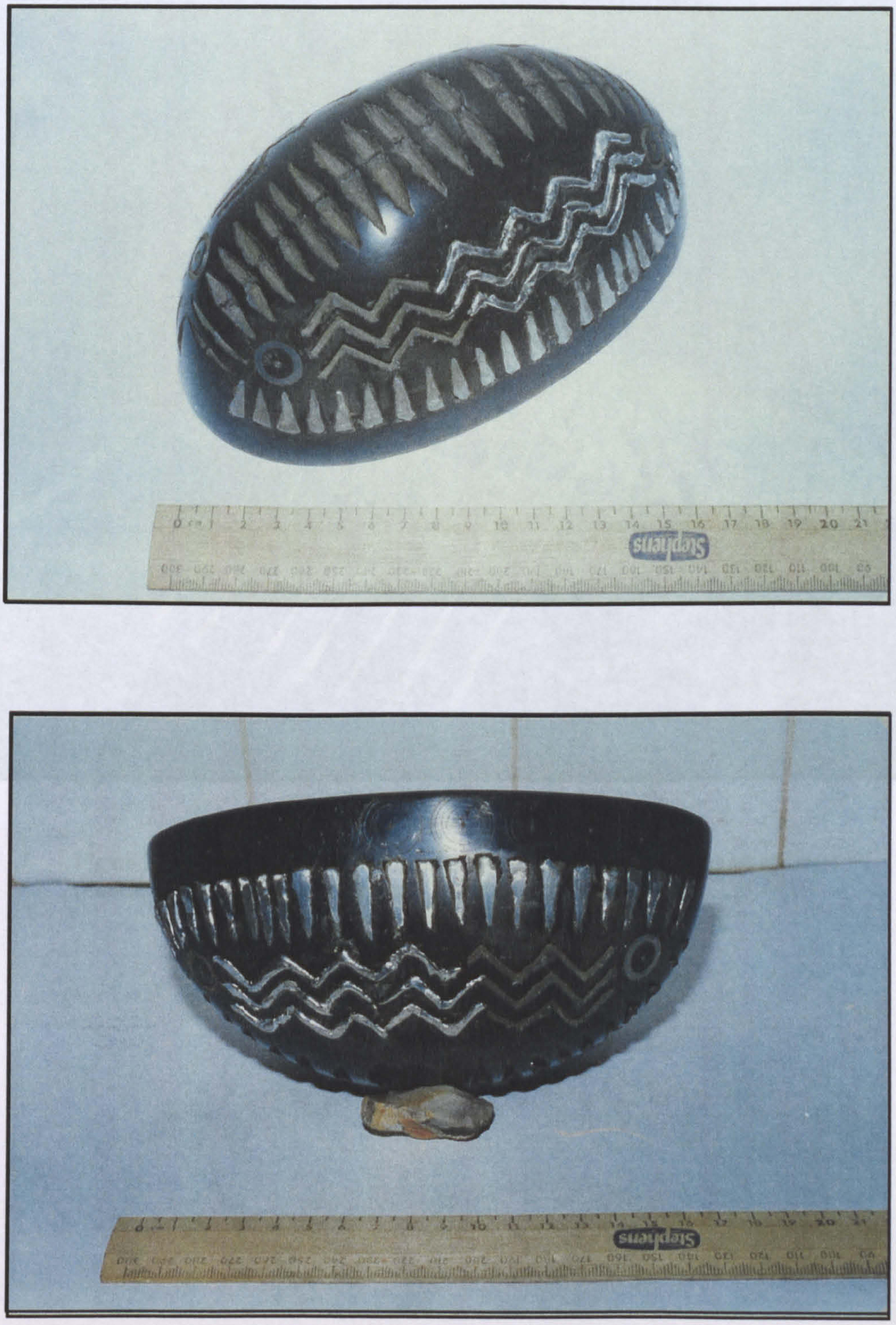

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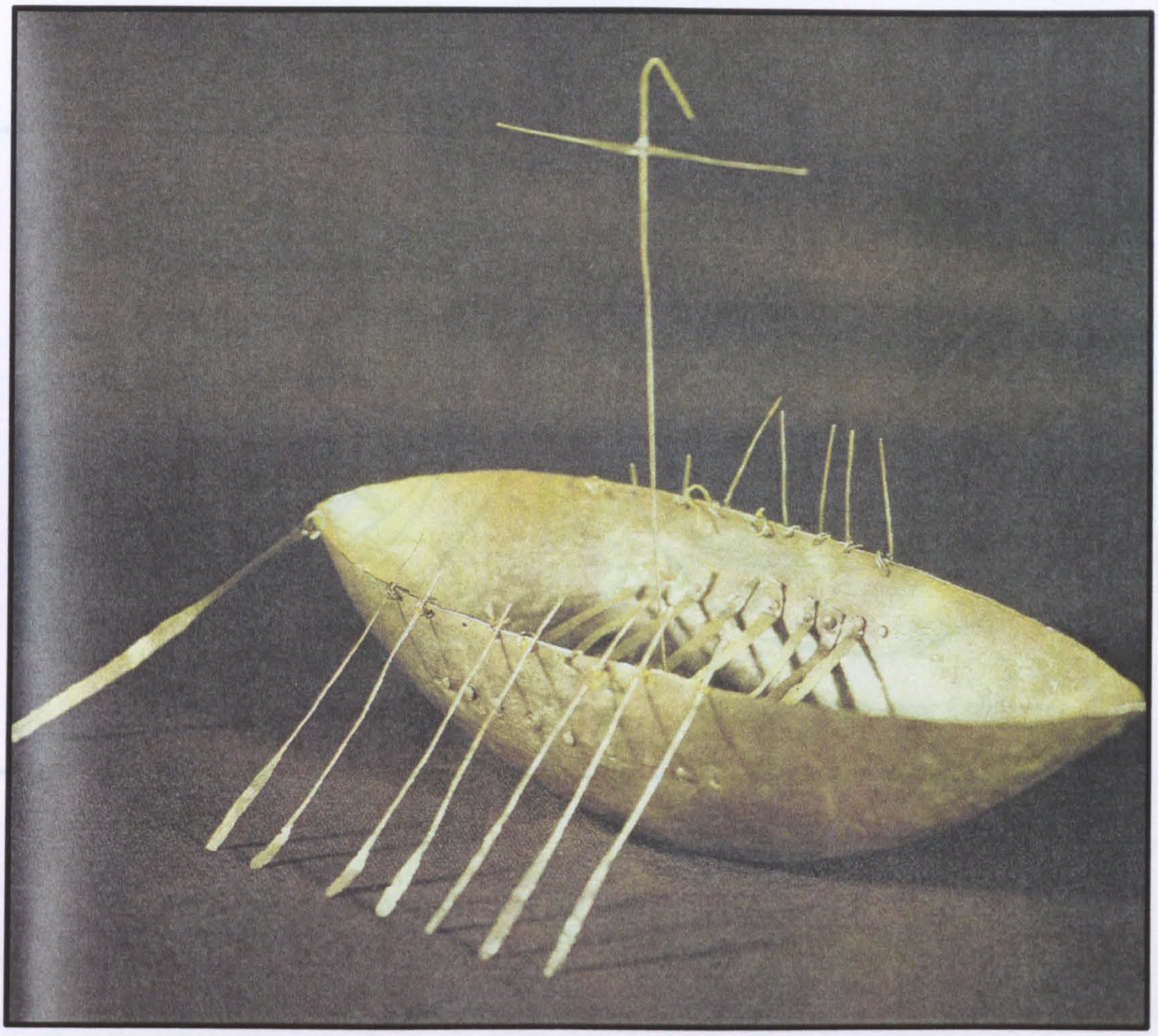

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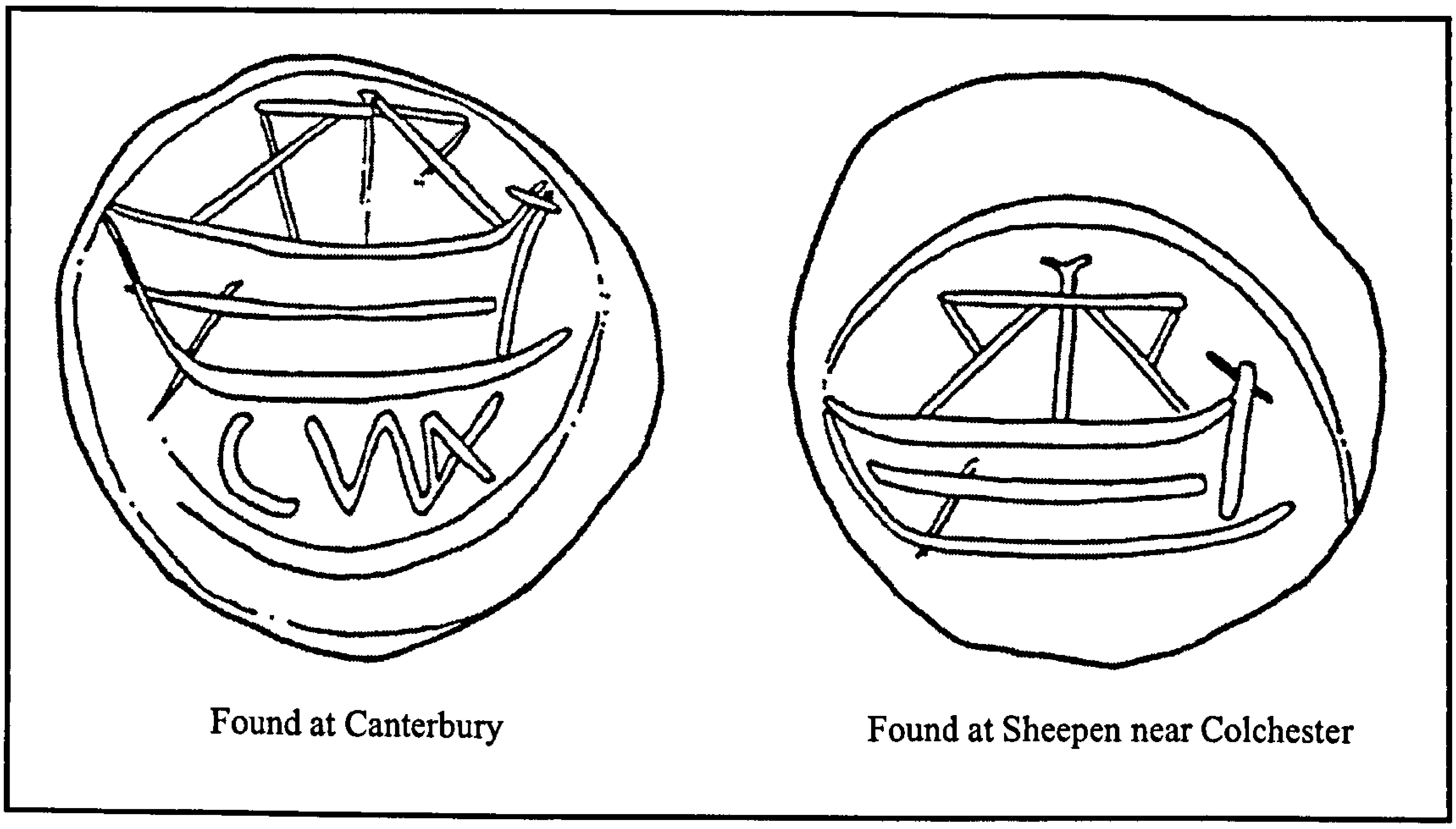

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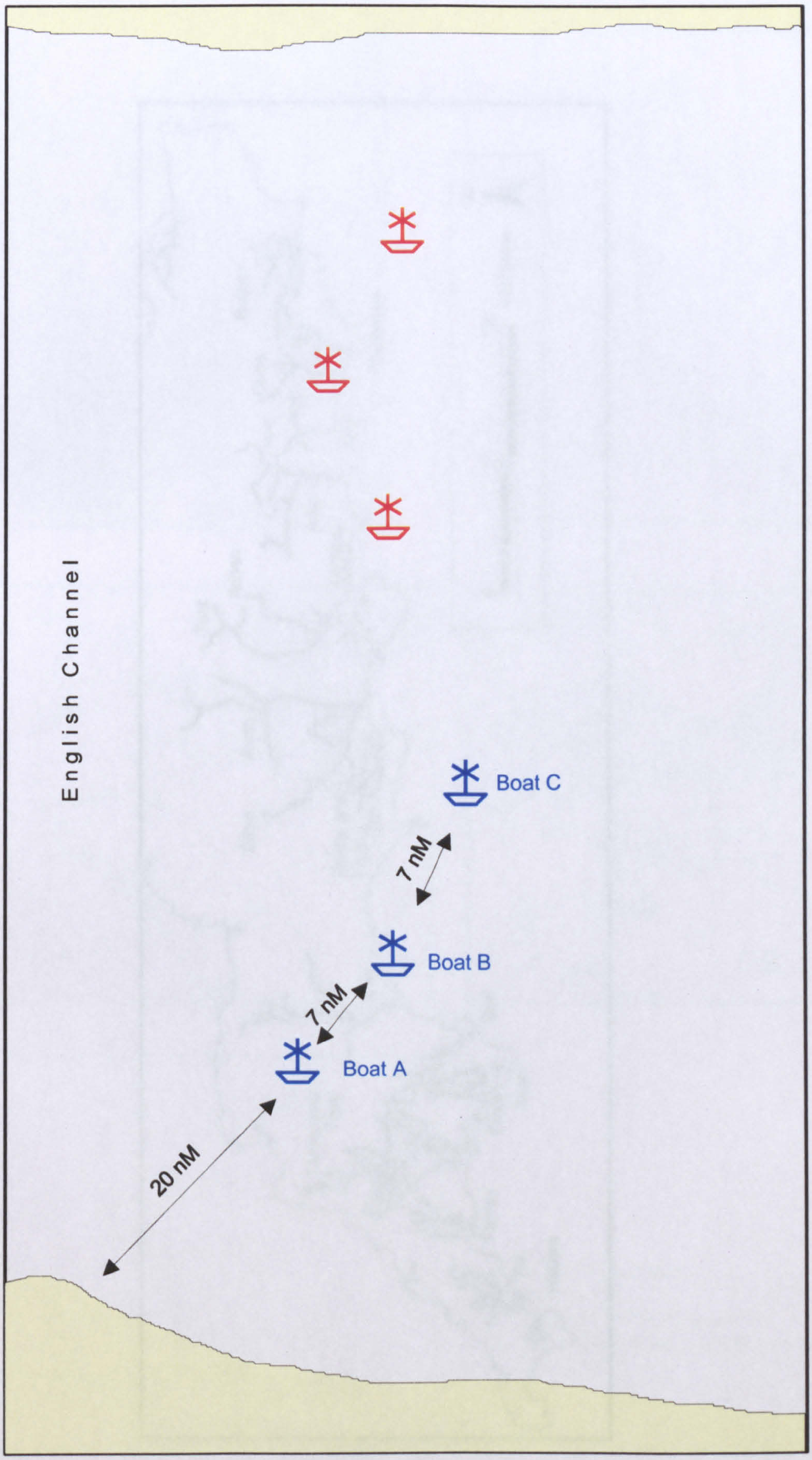

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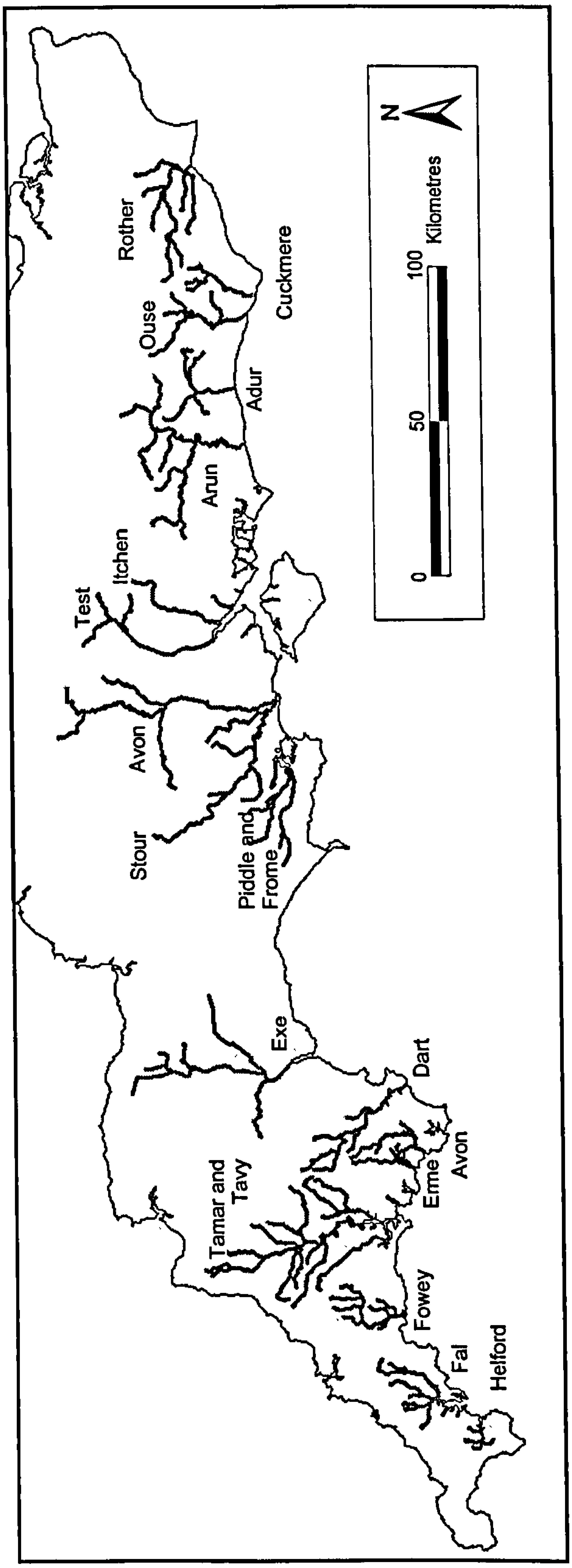

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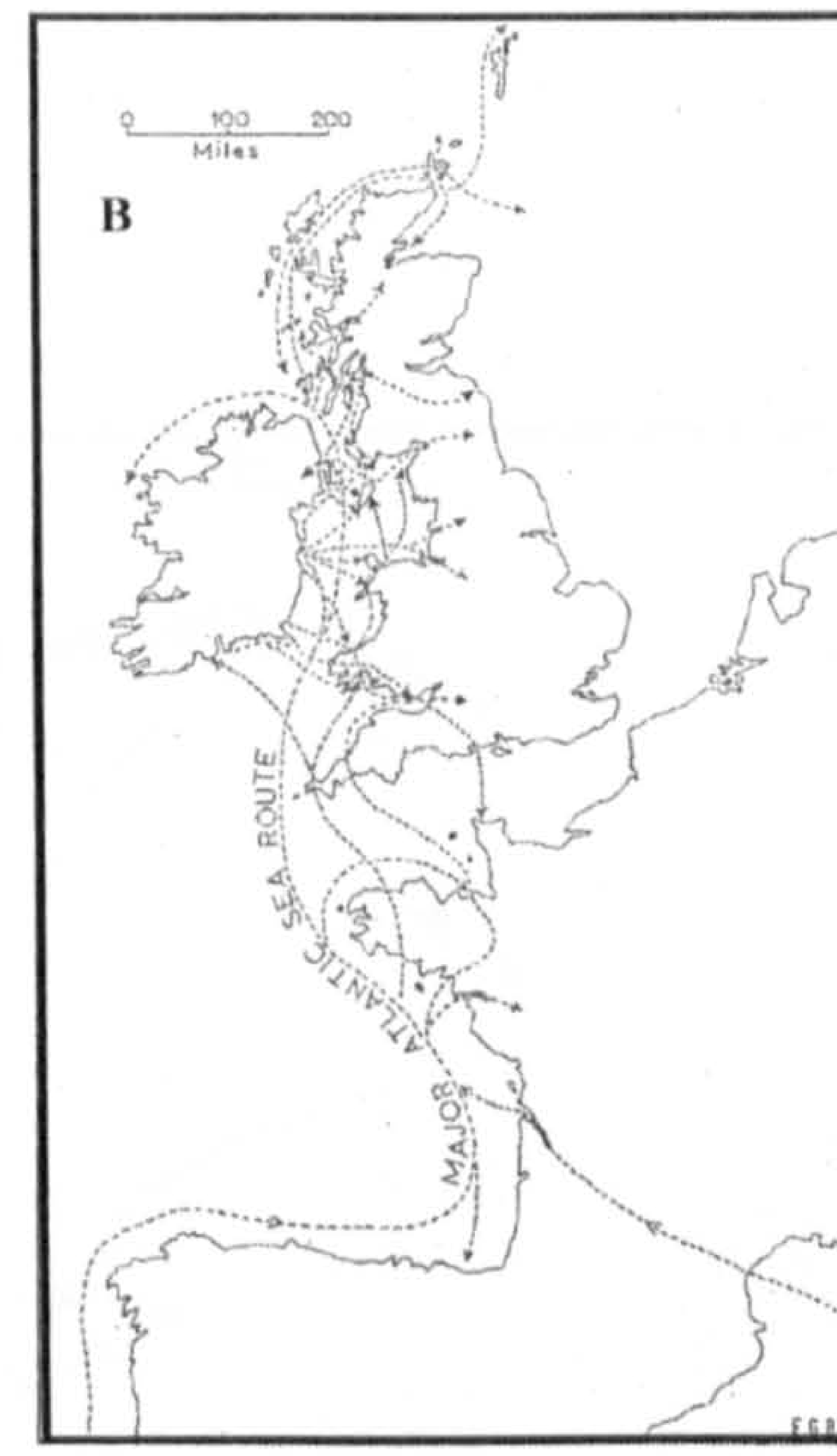

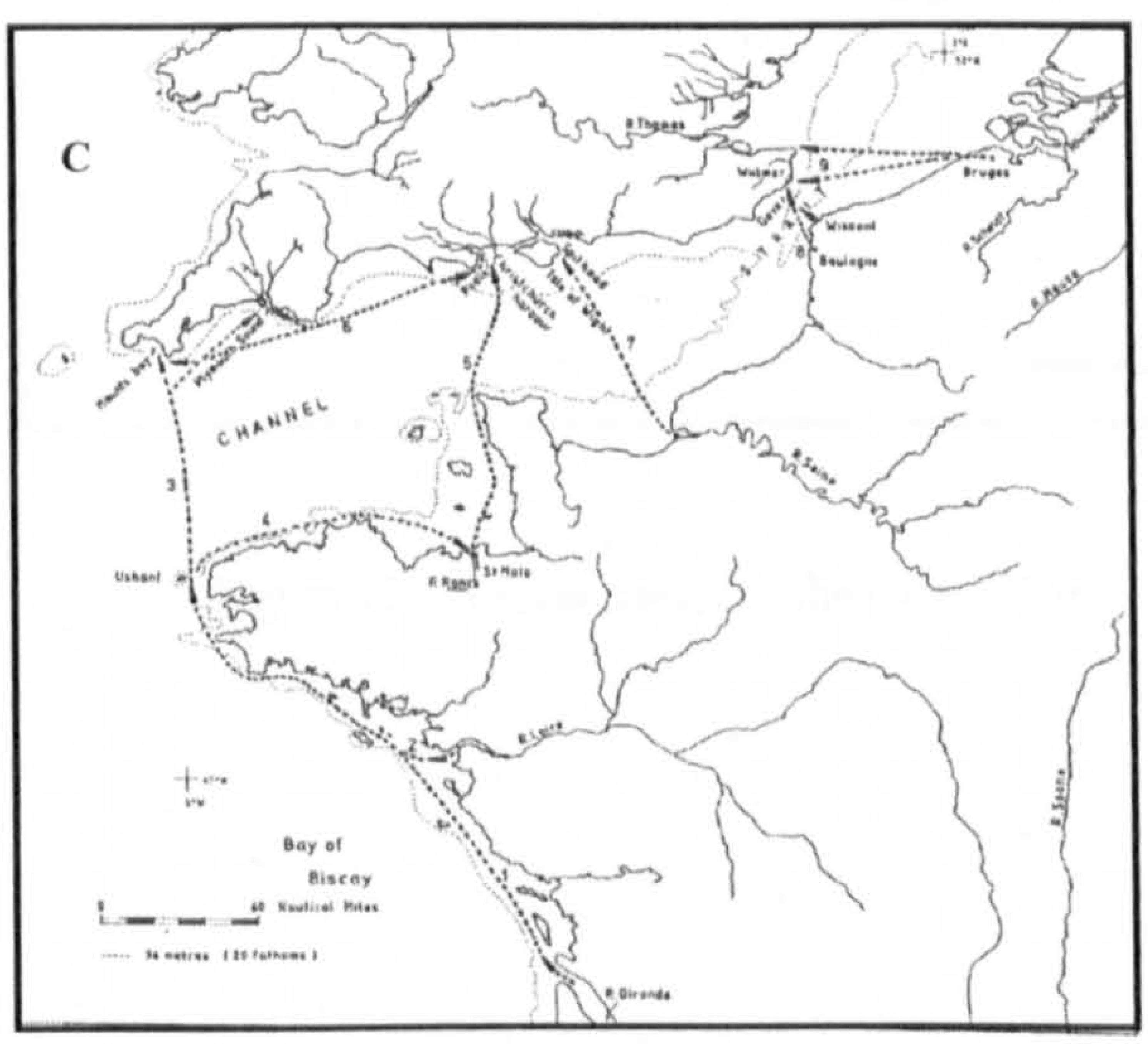

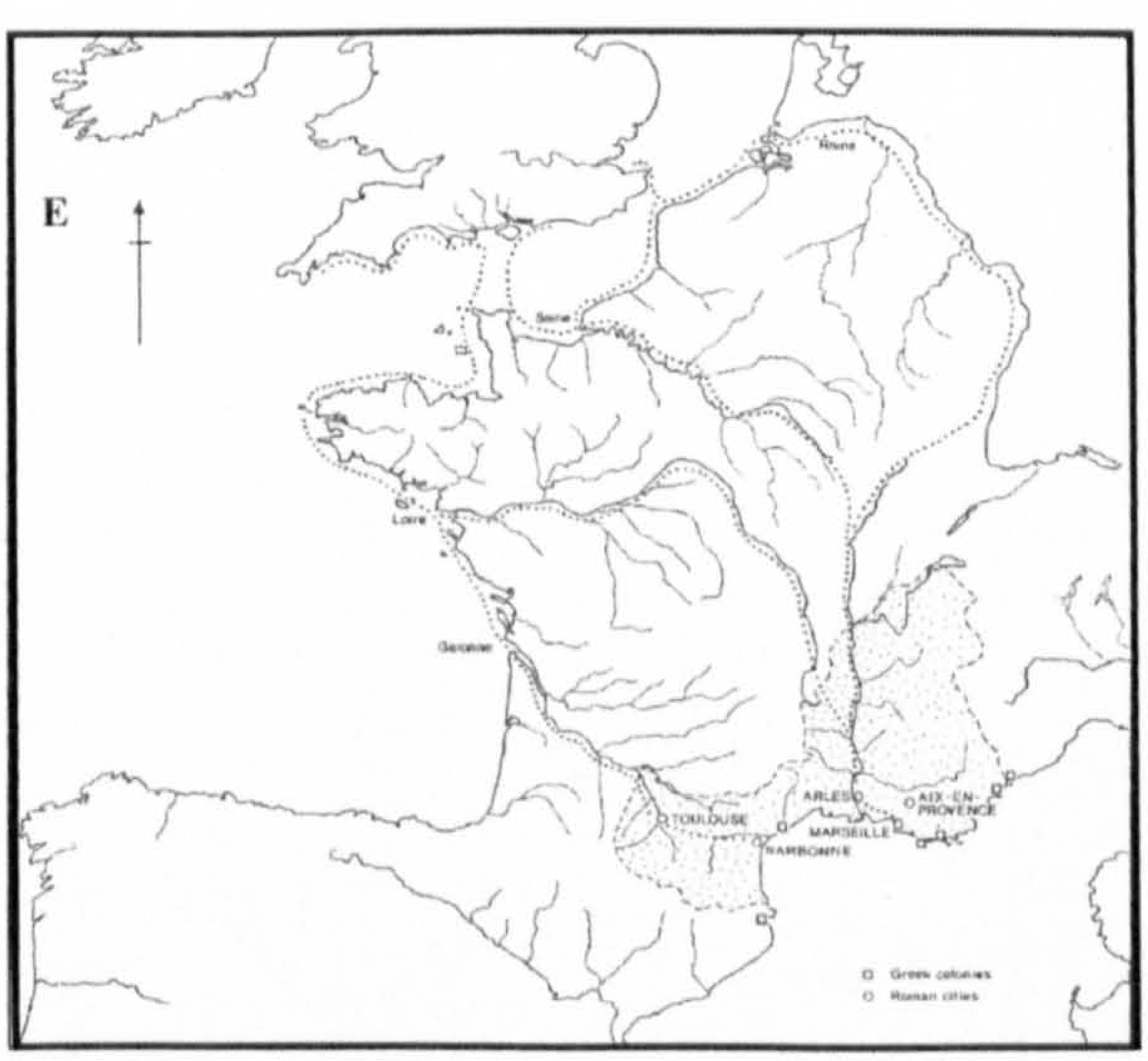

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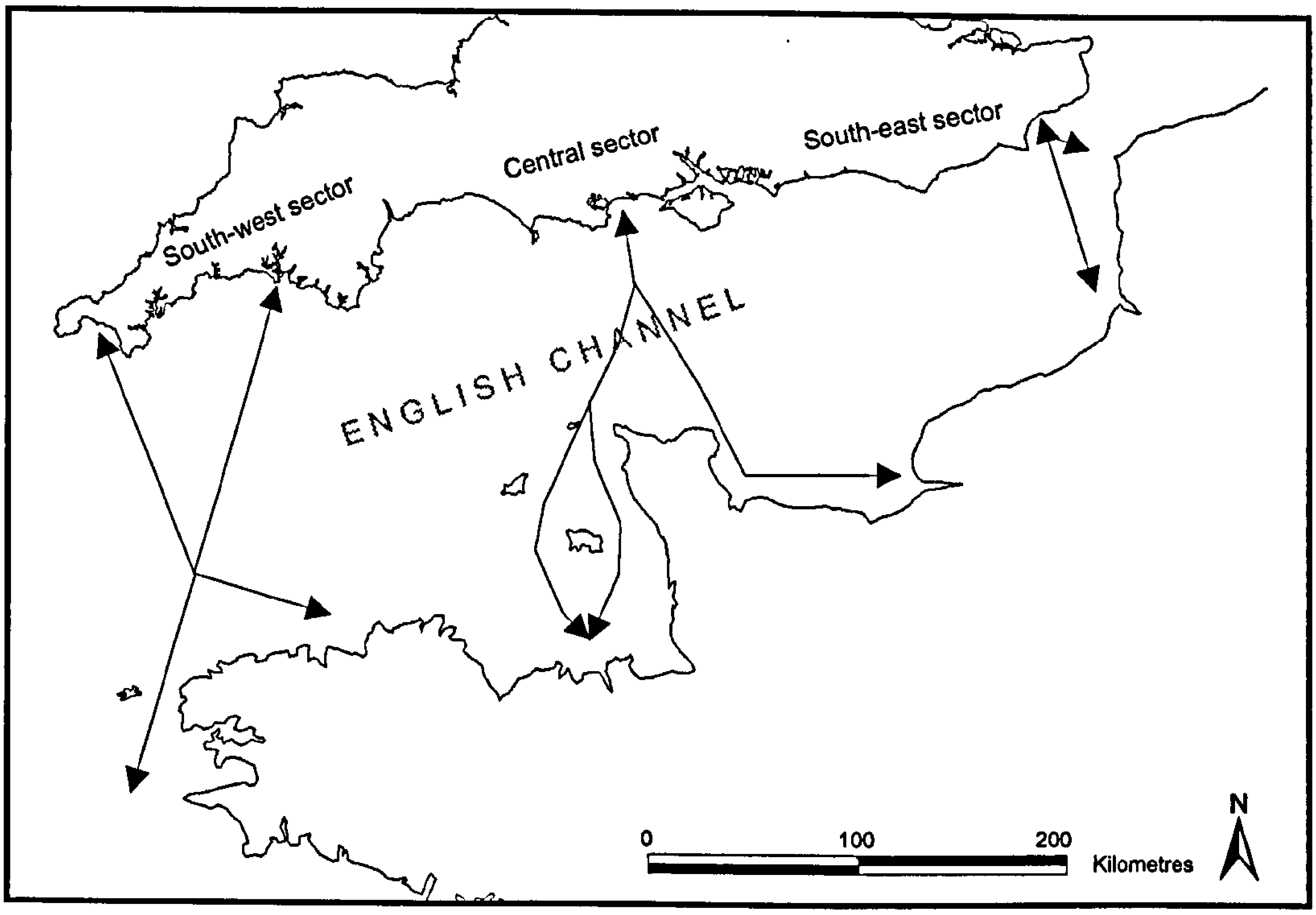

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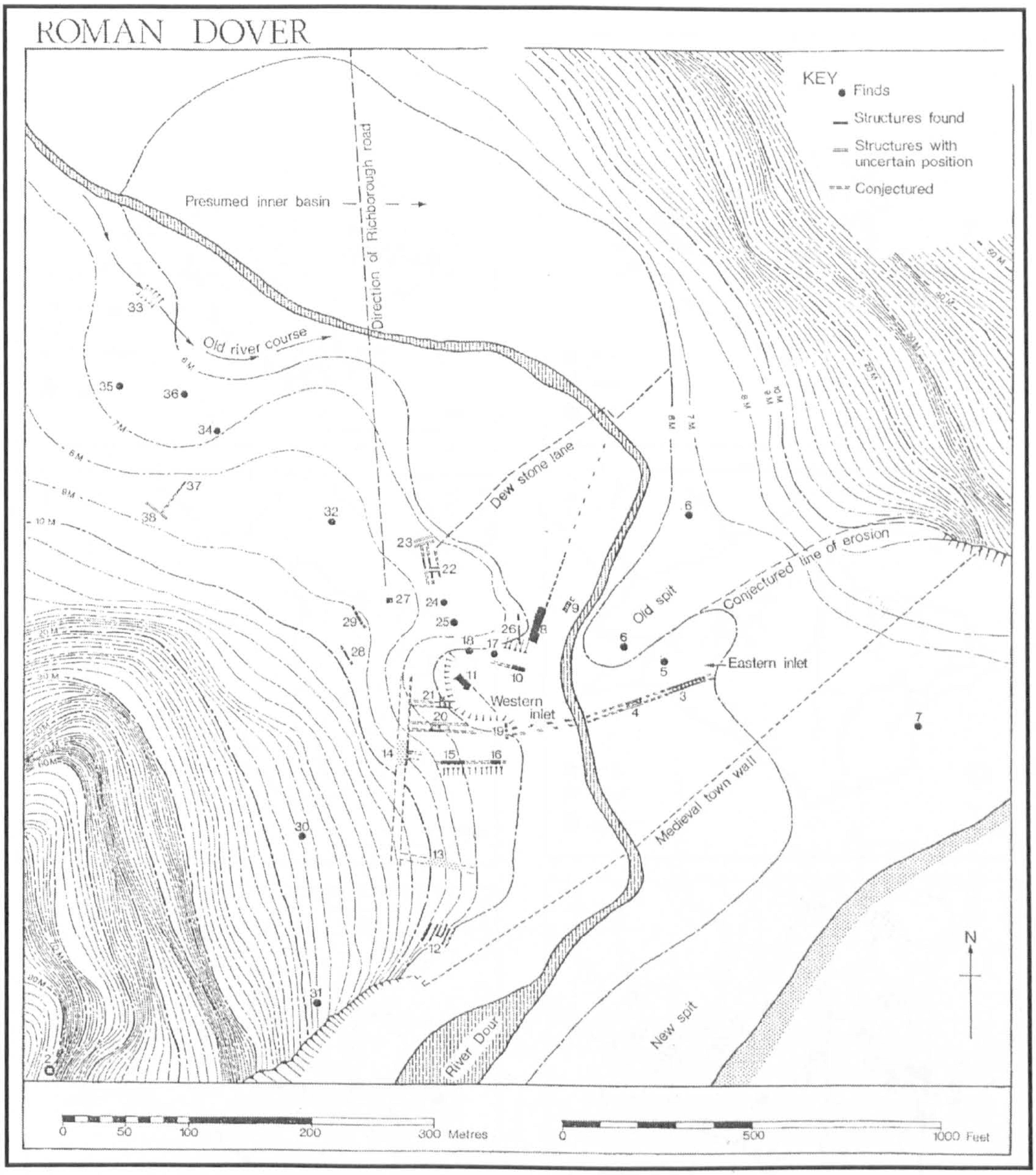

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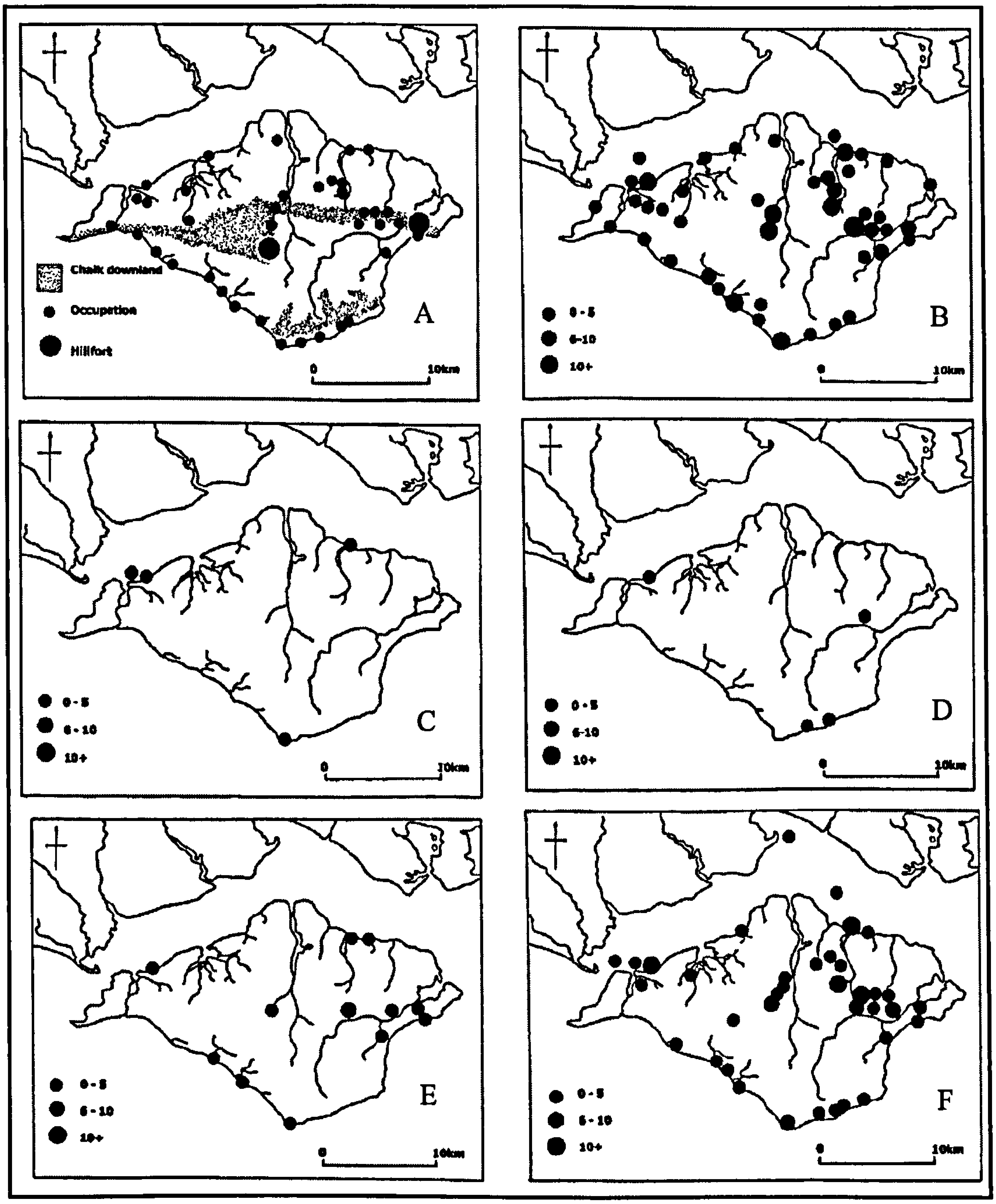

A Iron Age sites on the Isle of Wight (Trott and Tomalin 2003, Figure 4)
B Durotrigian black burnished pottery of late Iron Age style (Trott and Tomalin 2003, Figure 8)
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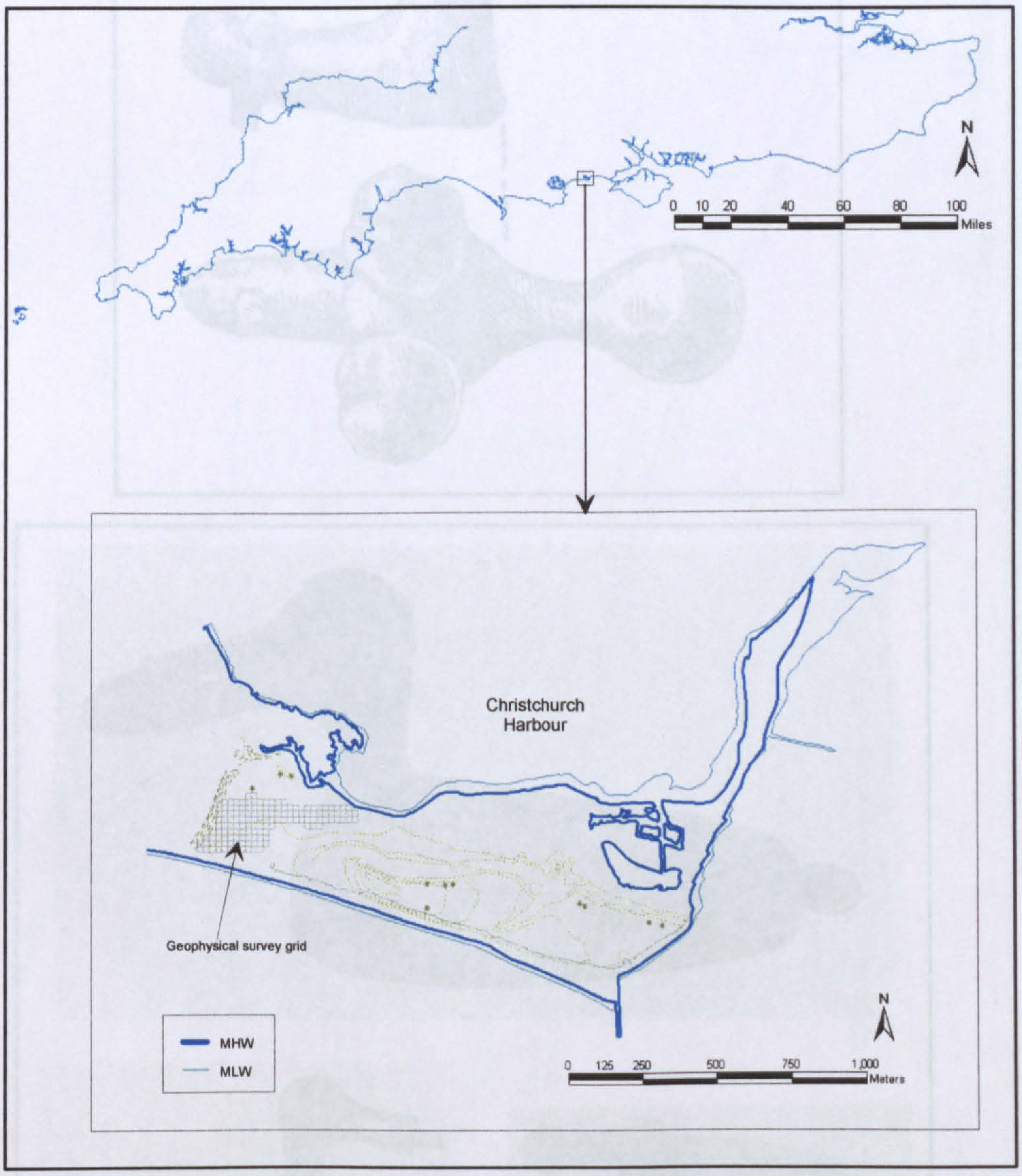

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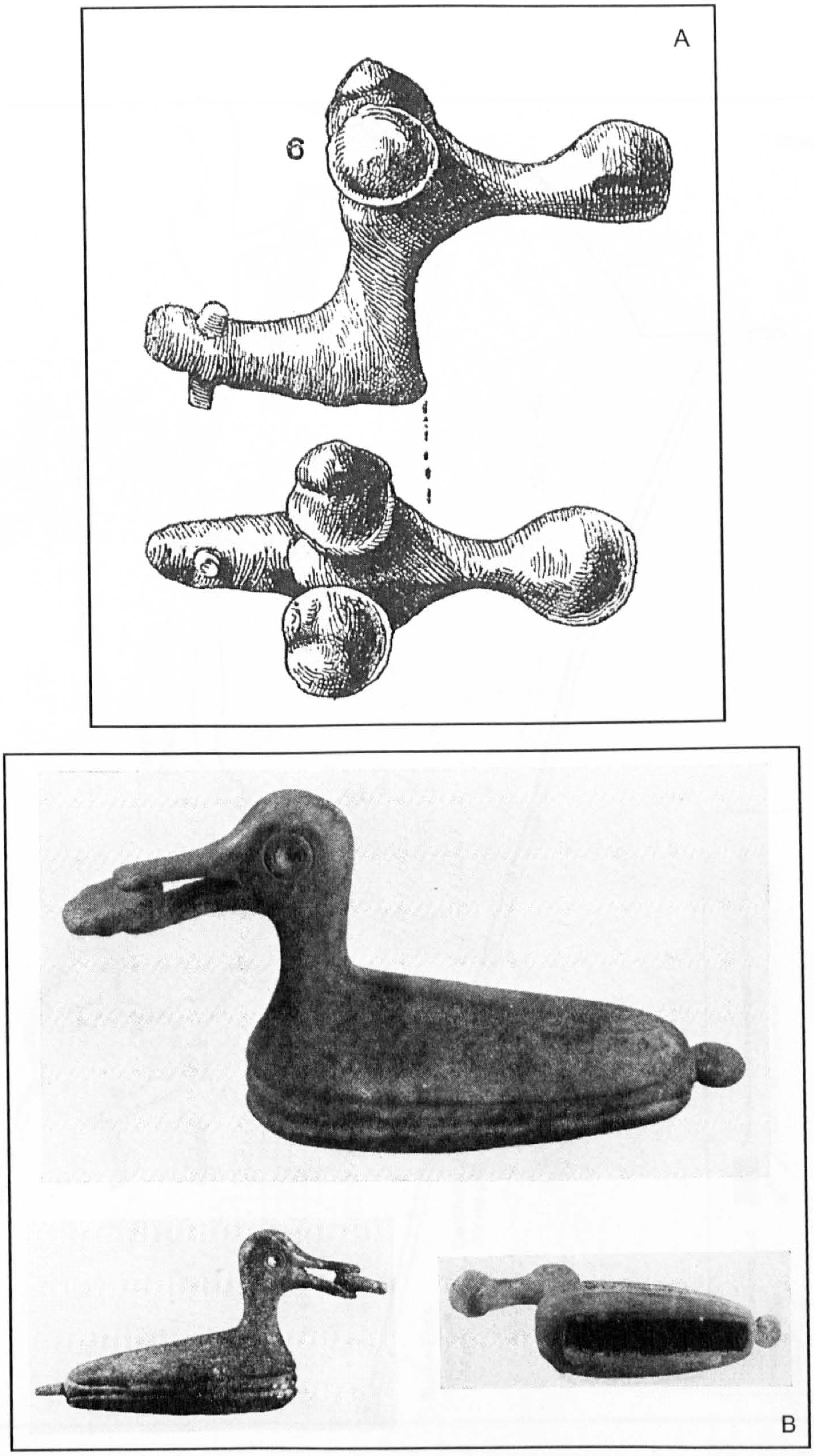

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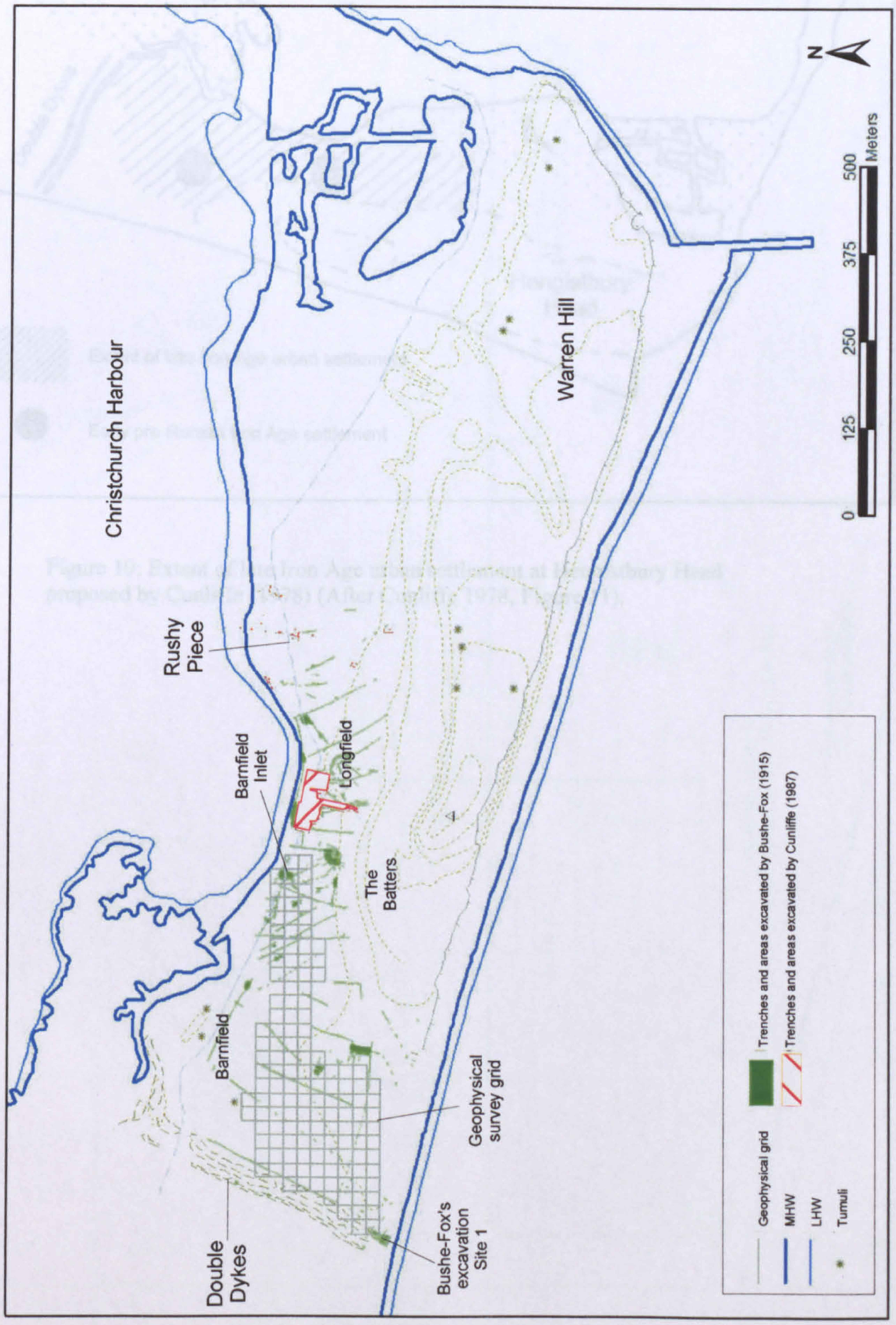

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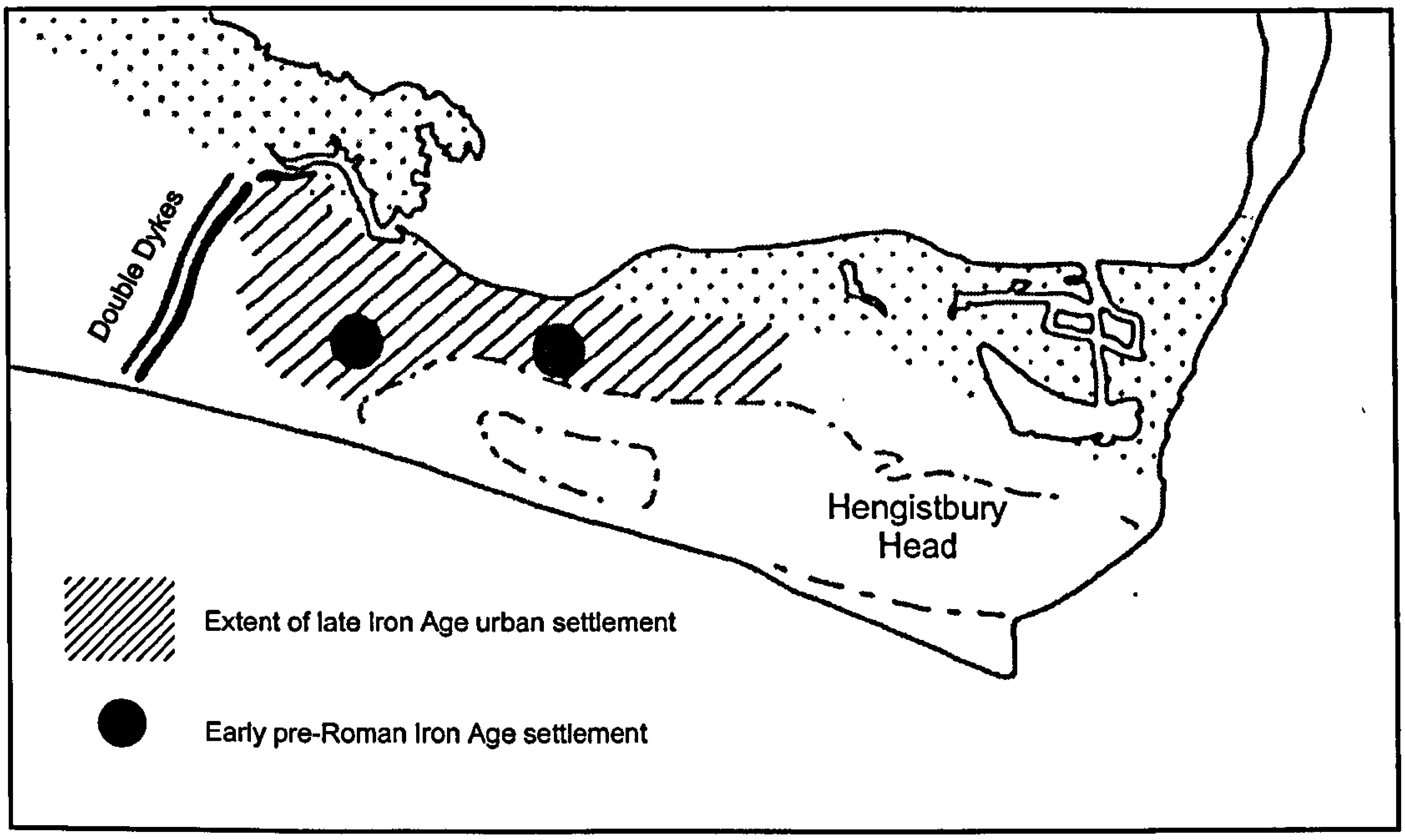

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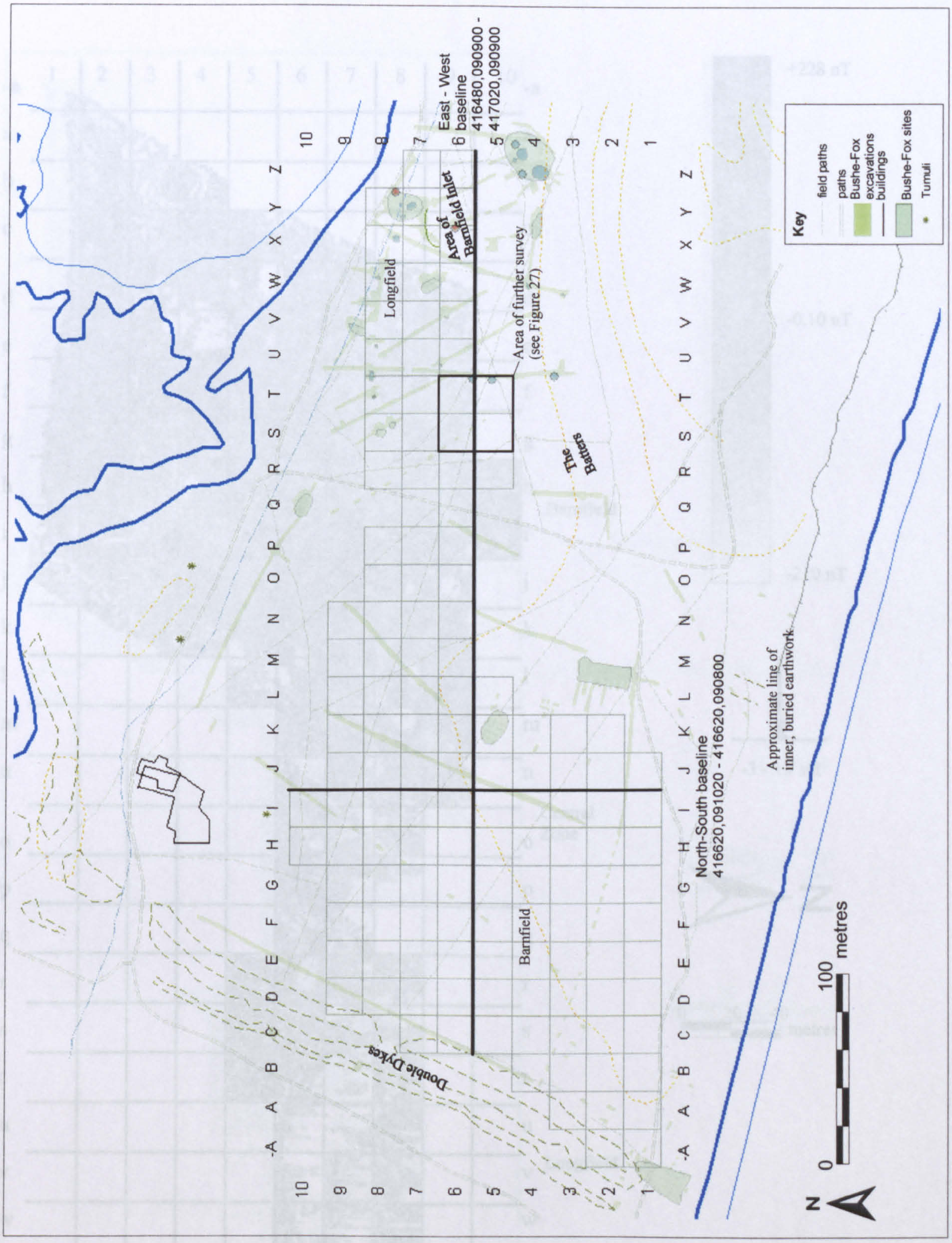

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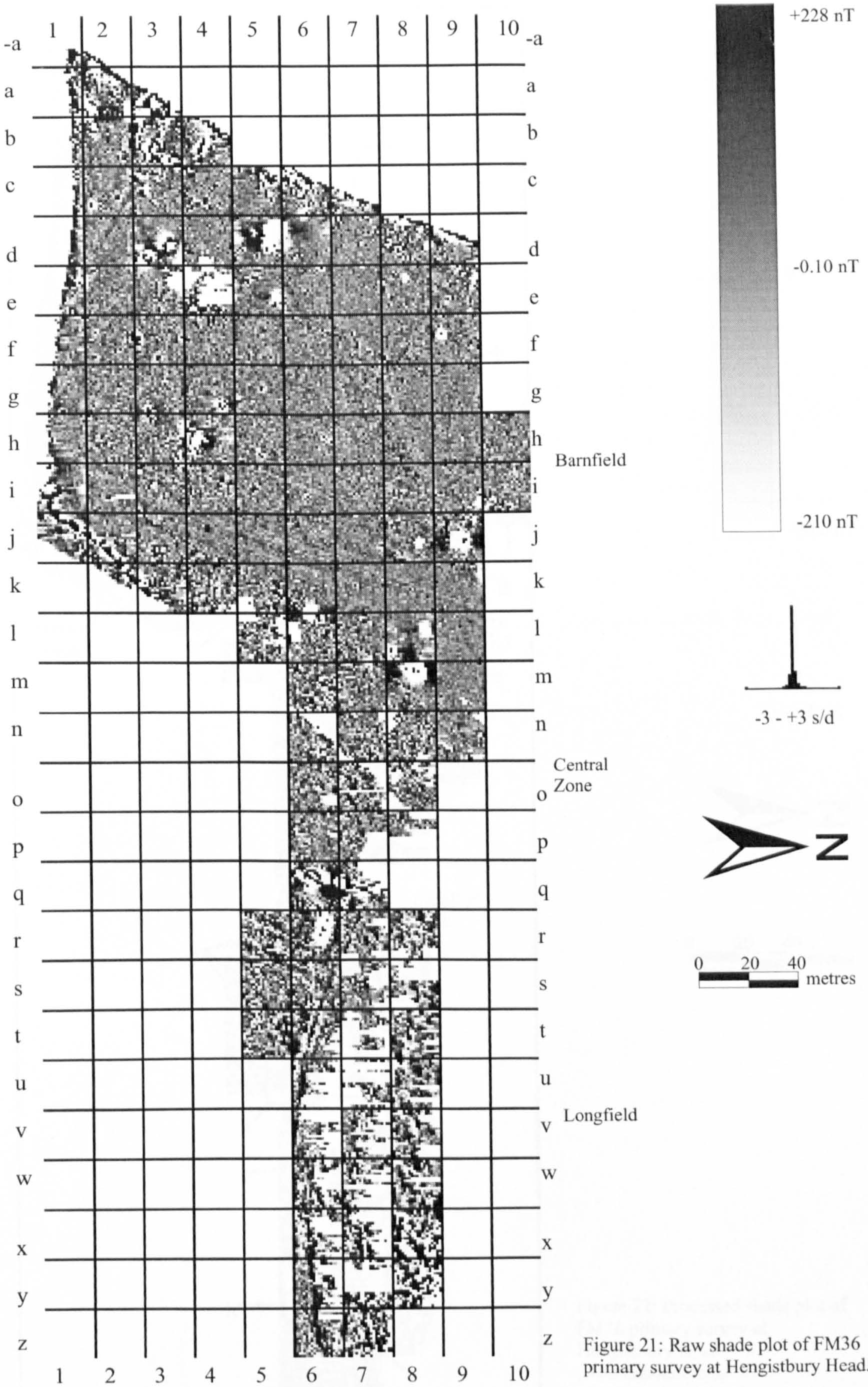


Figure 21: Raw shade plot of FM36 primary survey at Hengistbury Head.

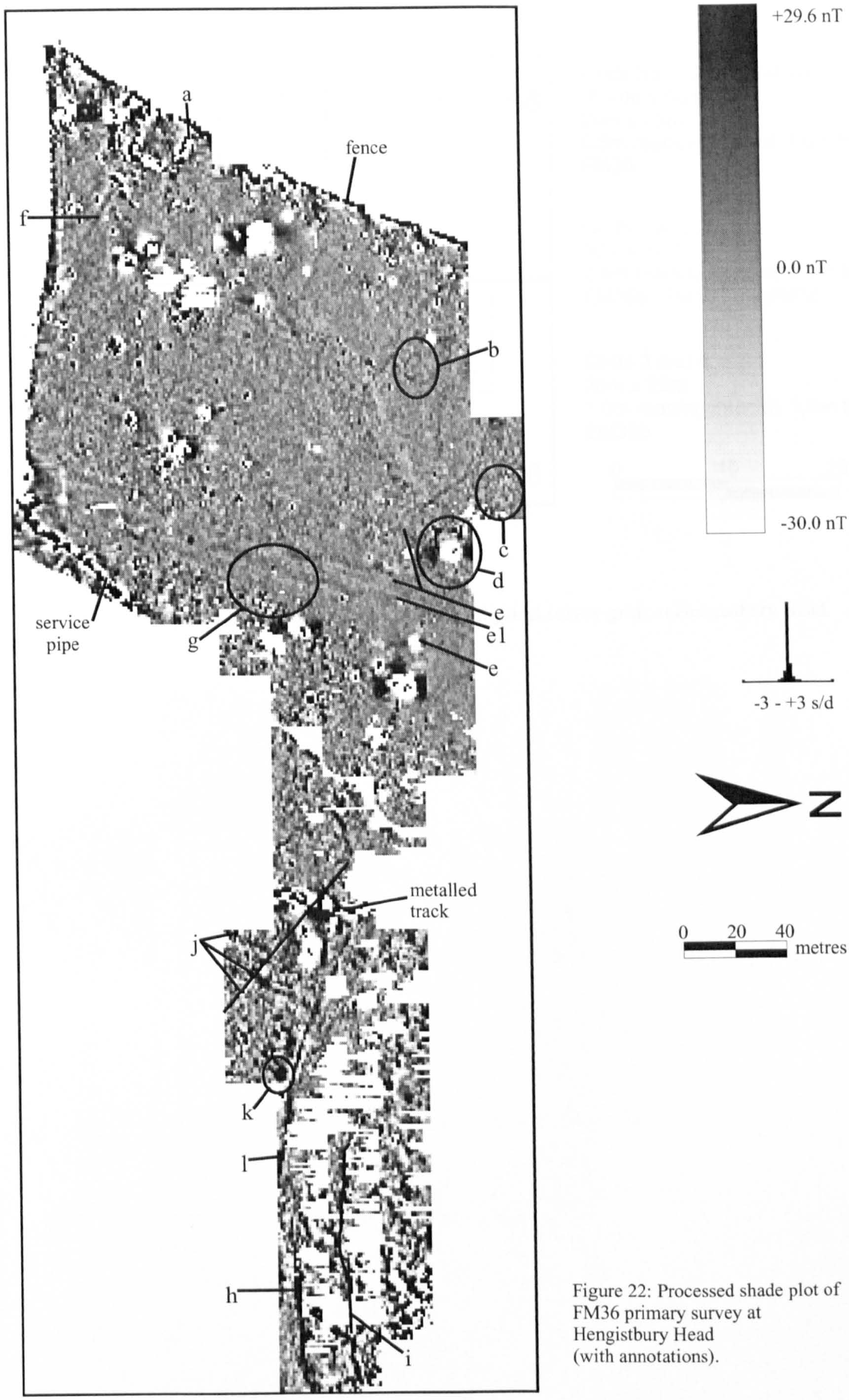
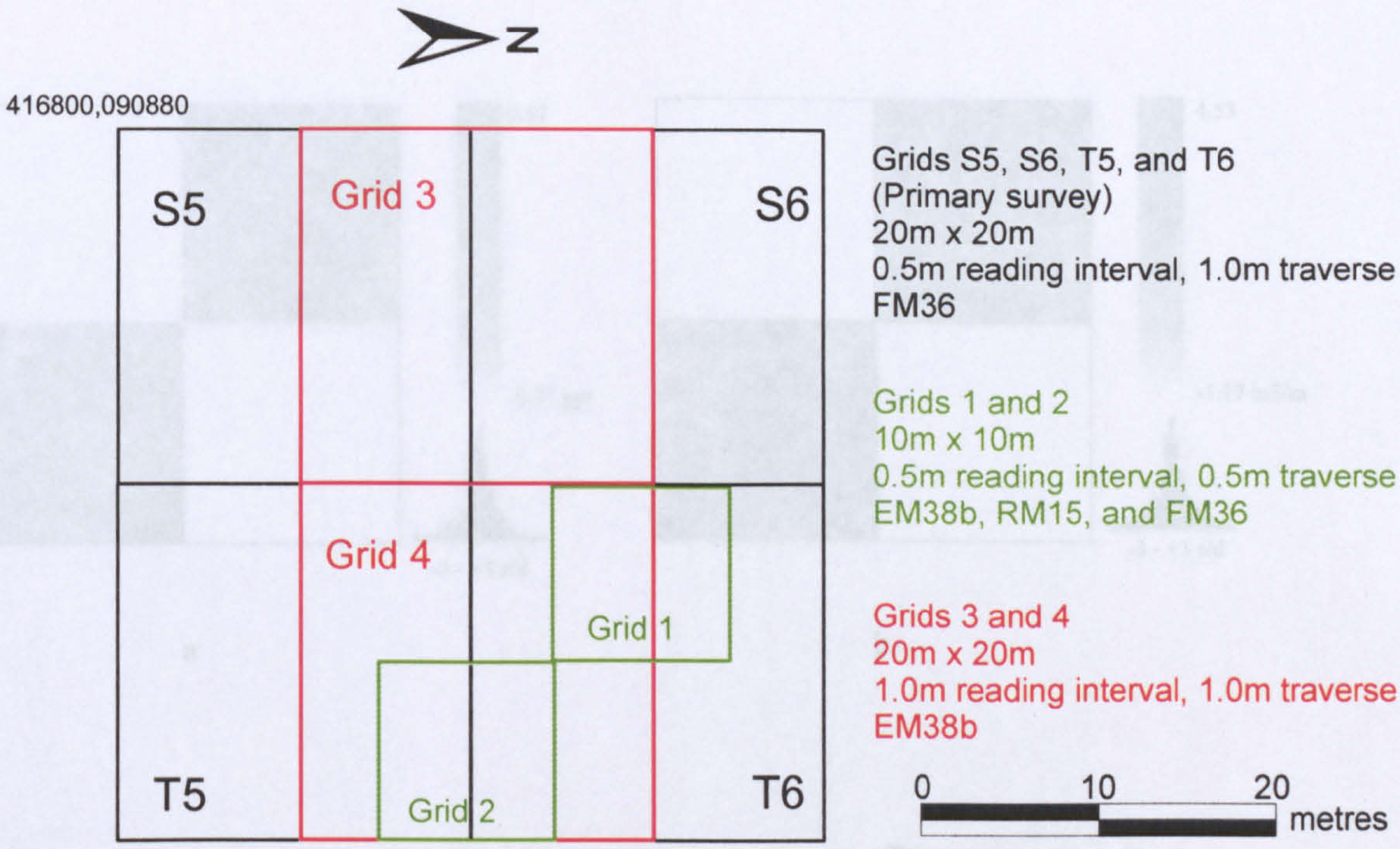


Figure 22: Processed shade plot of FM36 primary survey at Hengistbury Head (with annotations).



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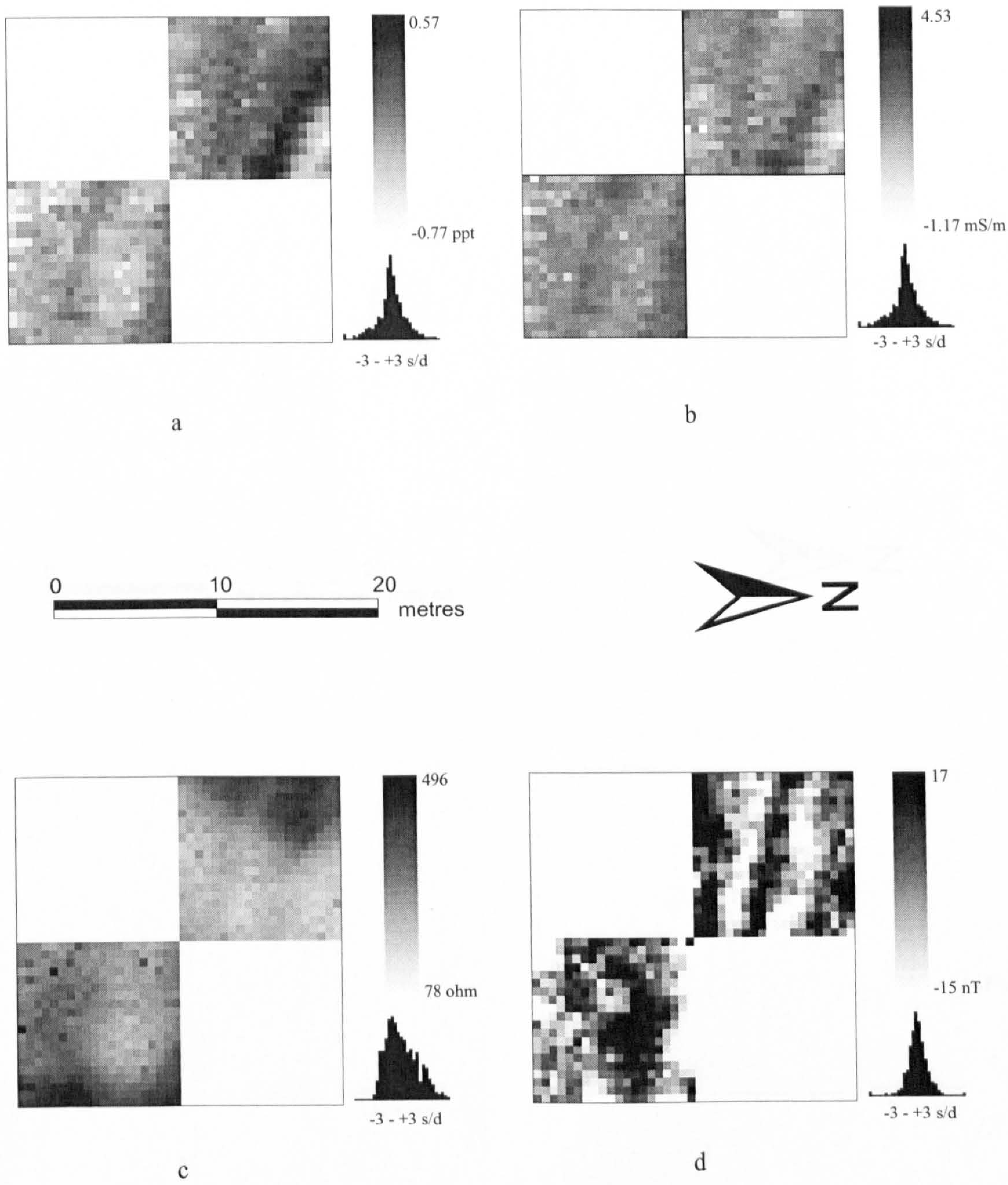

(a) EM38b inphase vertical dipole (b) EM38b quadrature component vertical dipole
(c) RM15 resistance (d) FM36 gradiometer (hi res).

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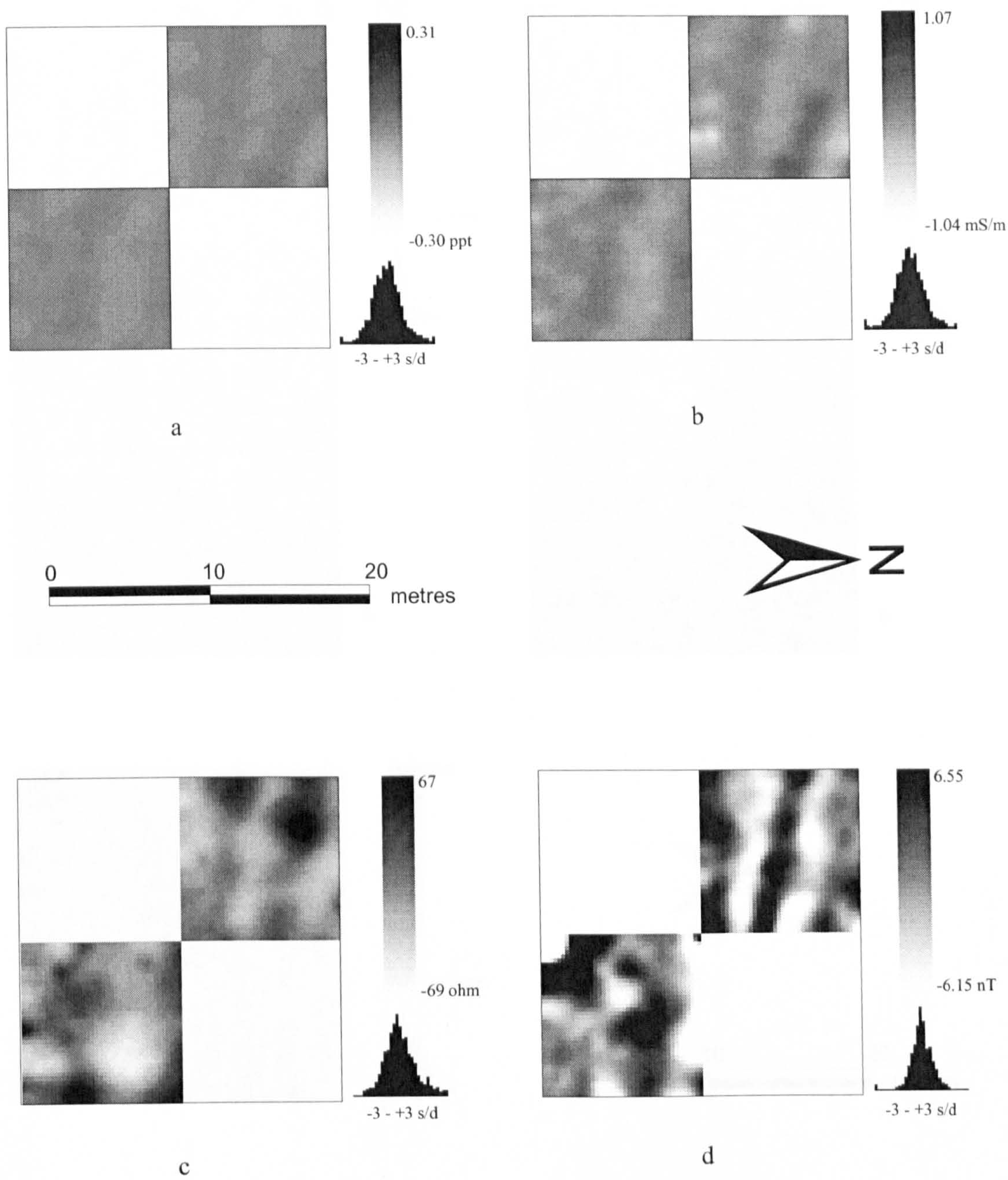

(a) EM38b inphase vertical dipole (b) EM38b quadrature component vertical dipole
(c) RM15 resistance (d) FM36 gradiometer (hi res).

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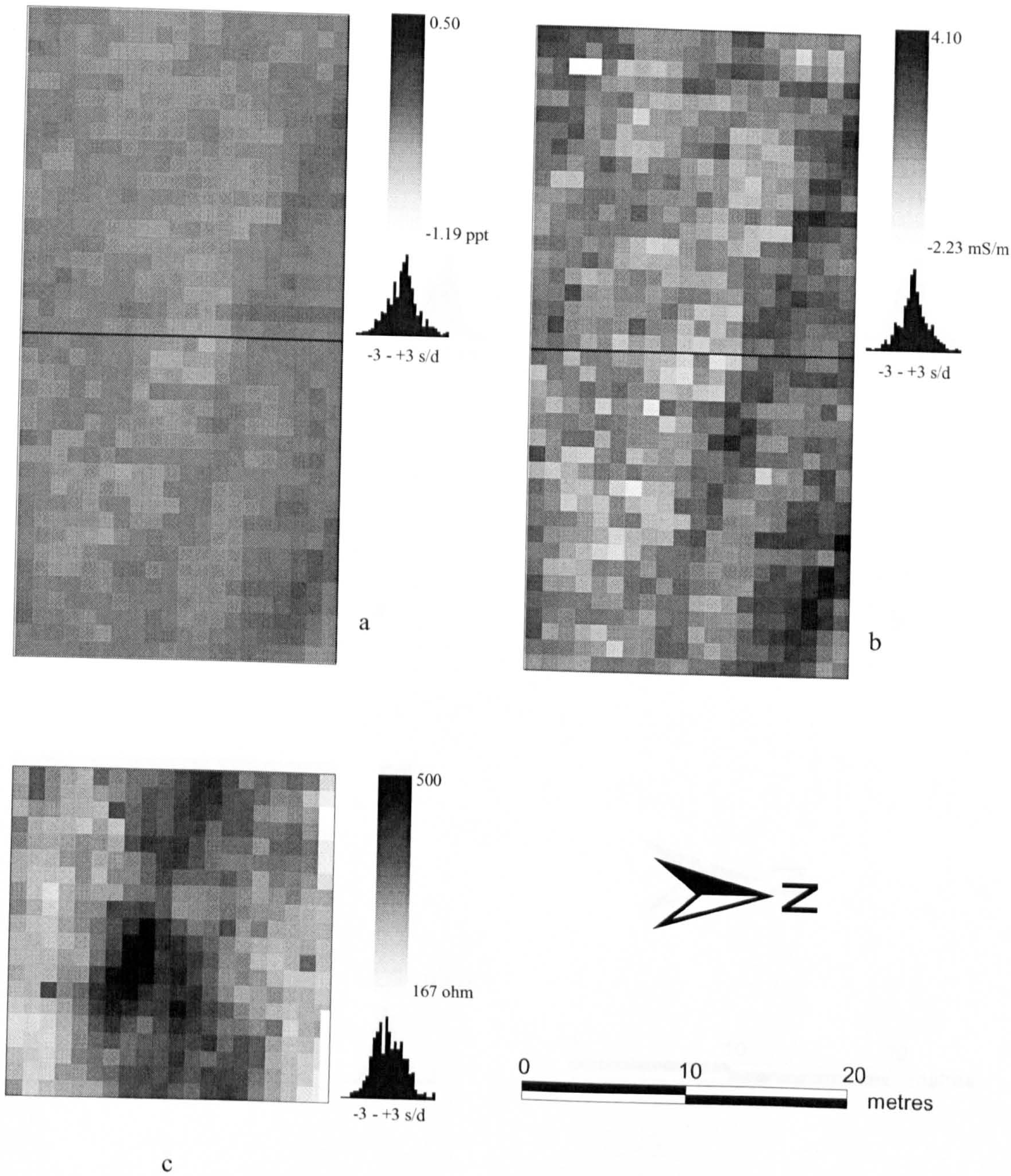

(a) EM38b inphase vertical dipole (b) EM38b quadrature component vertical dipole
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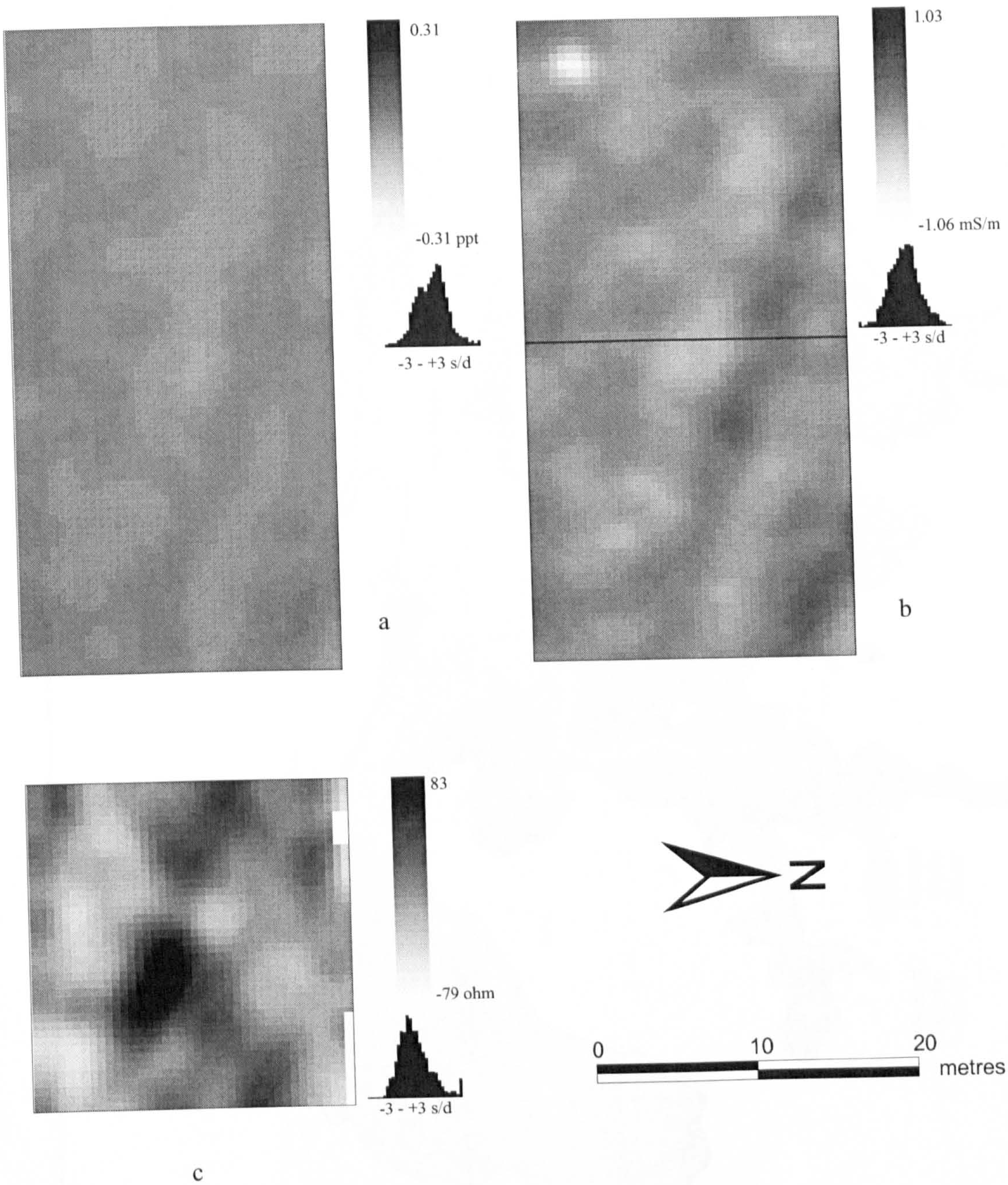
Figure 26: Raw shade plots of further survey grids 3 and 4 at Hengistbury Head (20m x 20m) (After Grasso 2003, Figure 21).



(a) EM38b inphase vertical dipole (b) EM38b quadrature component vertical dipole
(c) RM15 resistance (grid 3).

Figure 27: Processed shade plots of further survey grids 3 and 4 at Hengistbury Head (20m x 20m) (After Grasso 2003, Figure 23).

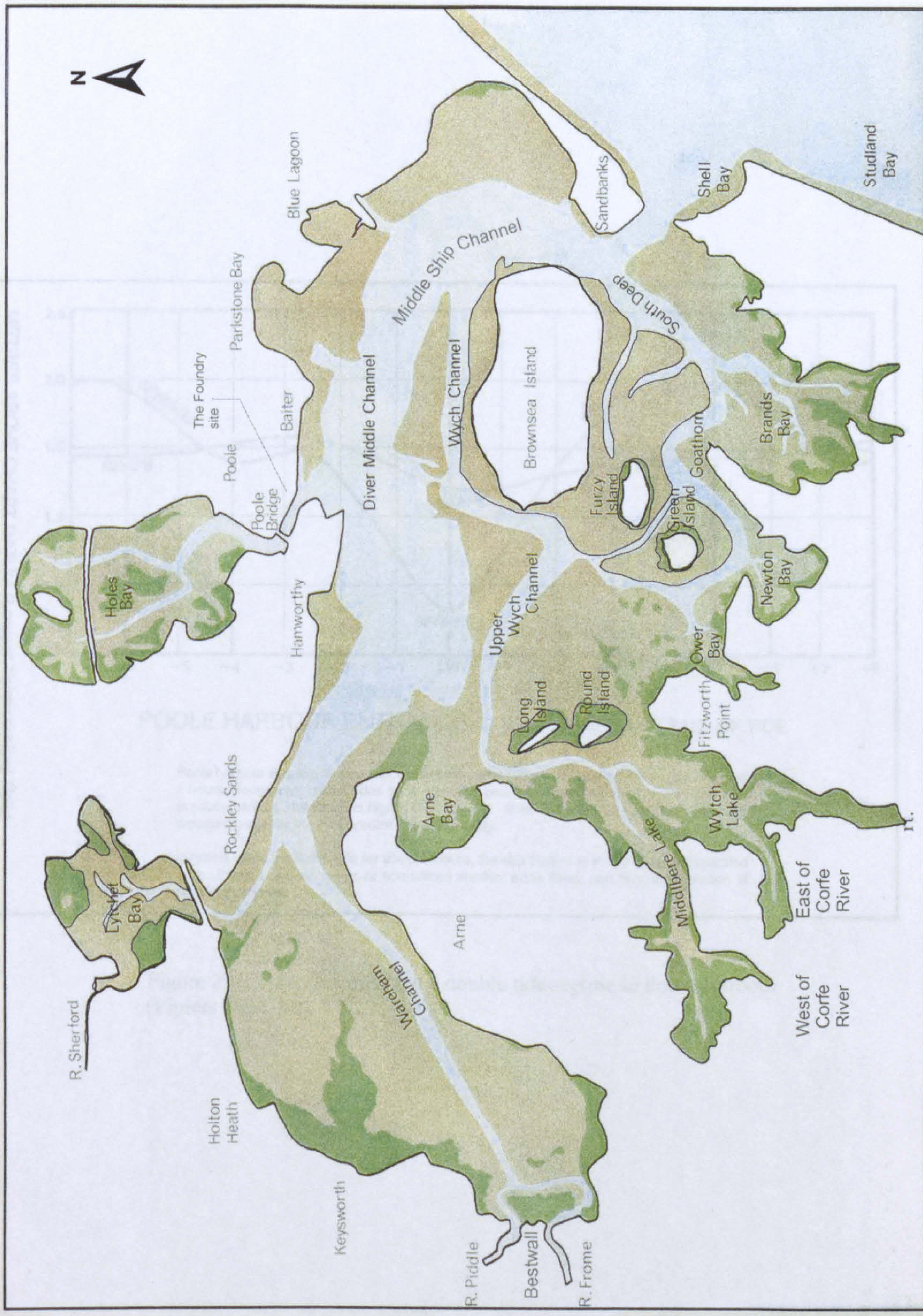
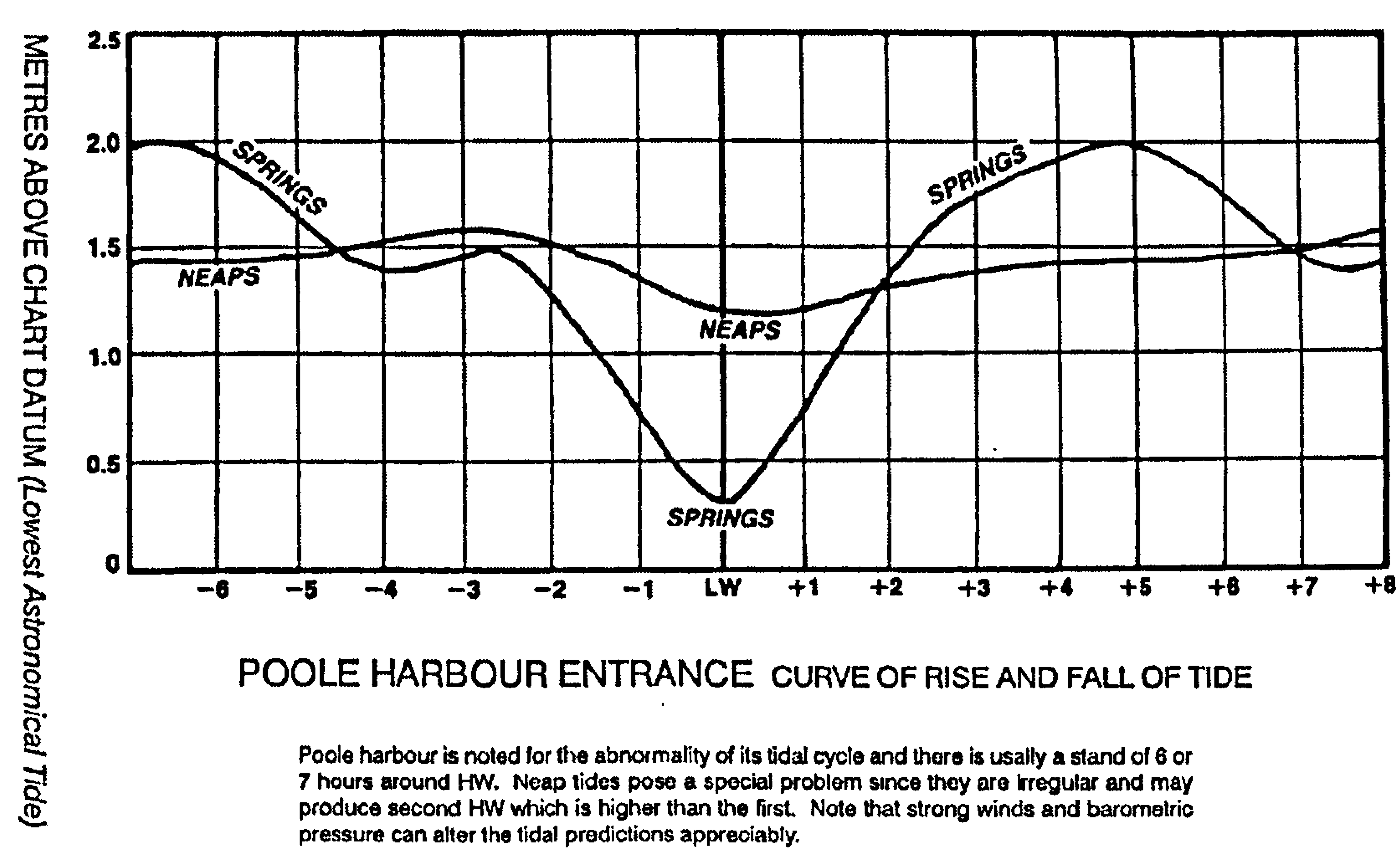


Figure 28: Map of Poole Harbour showing some of the places mentioned in the text.

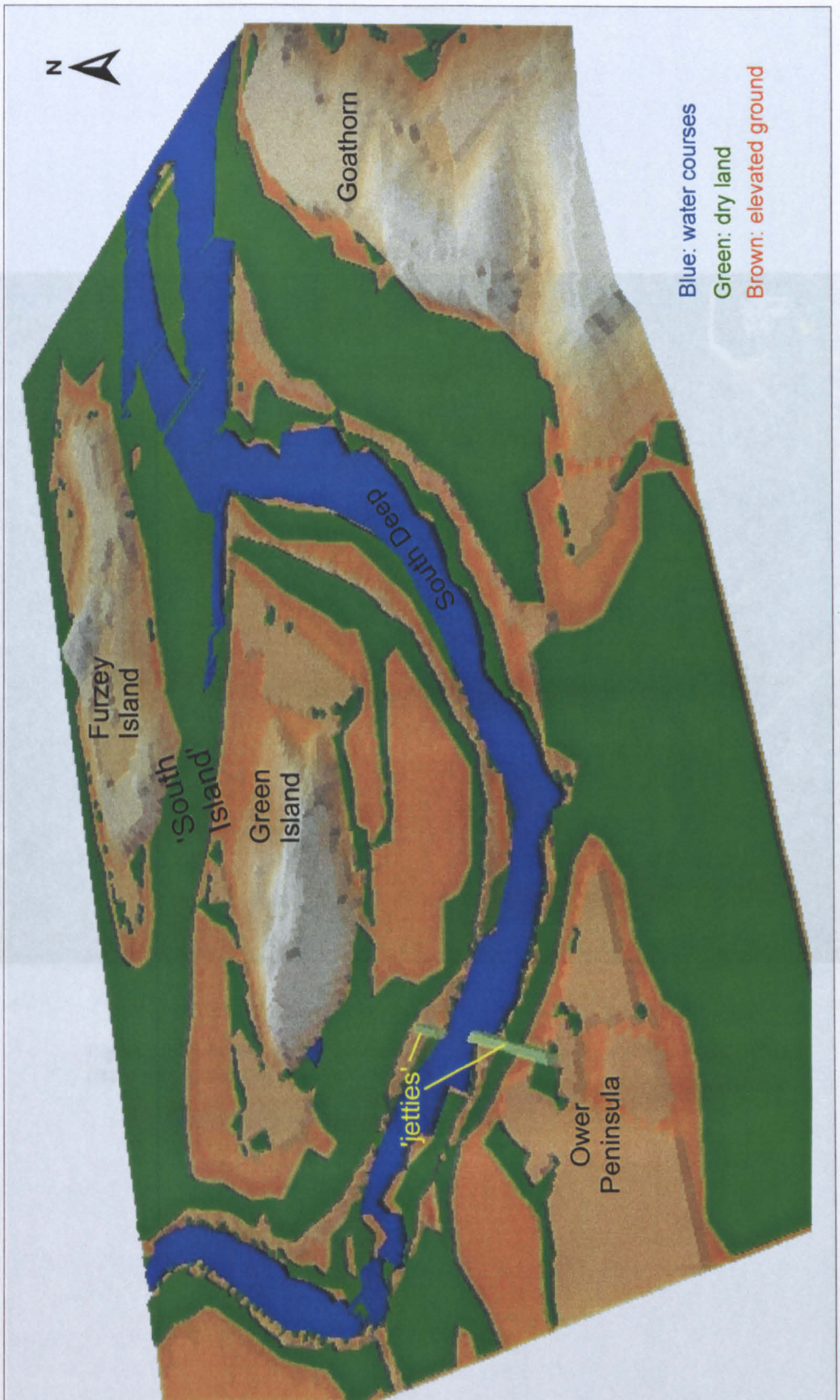


POOLE HARBOUR ENTRANCE CURVE OF RISE AND FALL OF TIDE

Poole harbour is noted for the abnormality of its tidal cycle and there is usally a stand of 6 or 7 hours around HW. Neap tides pose a special problem since they are irregular and may produce second HW which is higher than the first. Note that strong winds and barometric pressure can alter the tidal predictions appreciably.

In broad terms the flood runs for about 5 hours, the ebb then runs in two periods seperated by an interval of slack water, or sometimes another weak flood, and has total duration of around 7.5 hours.

Figure 29: Graph illustrating the double tide regime in Poole Harbour (Piplers 2004, 49).



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(Image courtesy of VideoText Communication).

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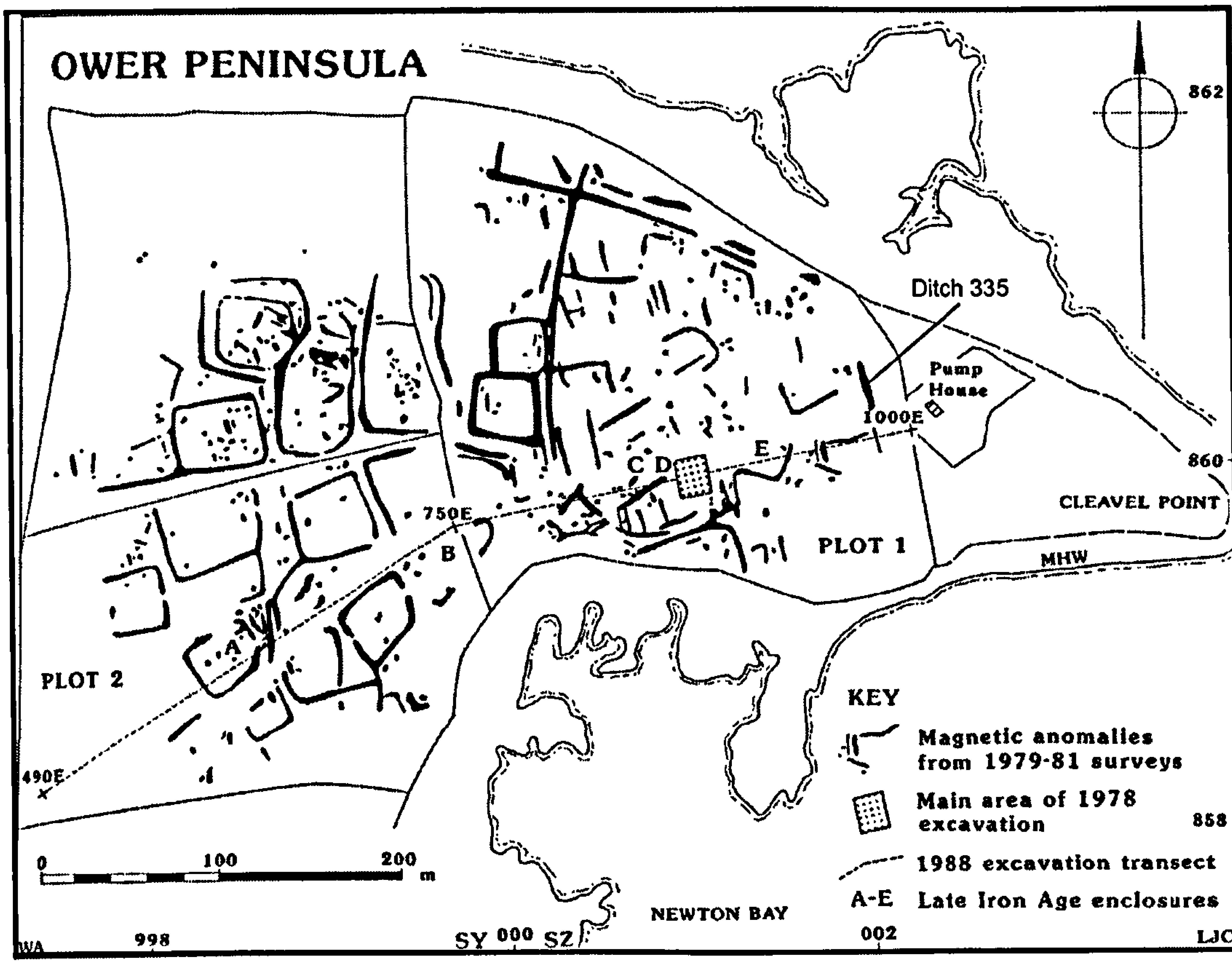


Figure 32: Plot of anomalies detected by geophysical survey at Ower Peninsula 1979-81 (after Cox and Hearne 1991, Figure 31).

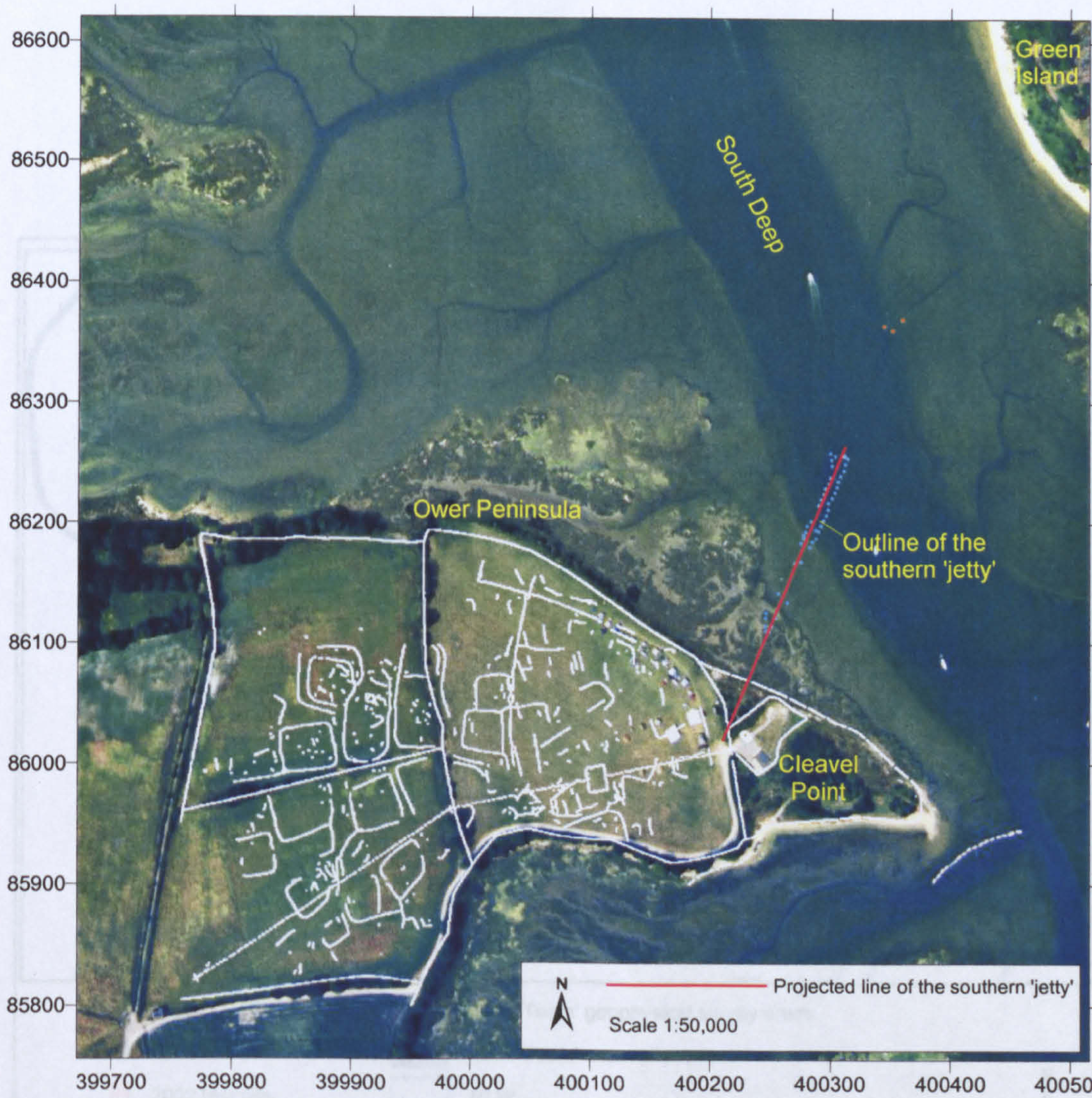
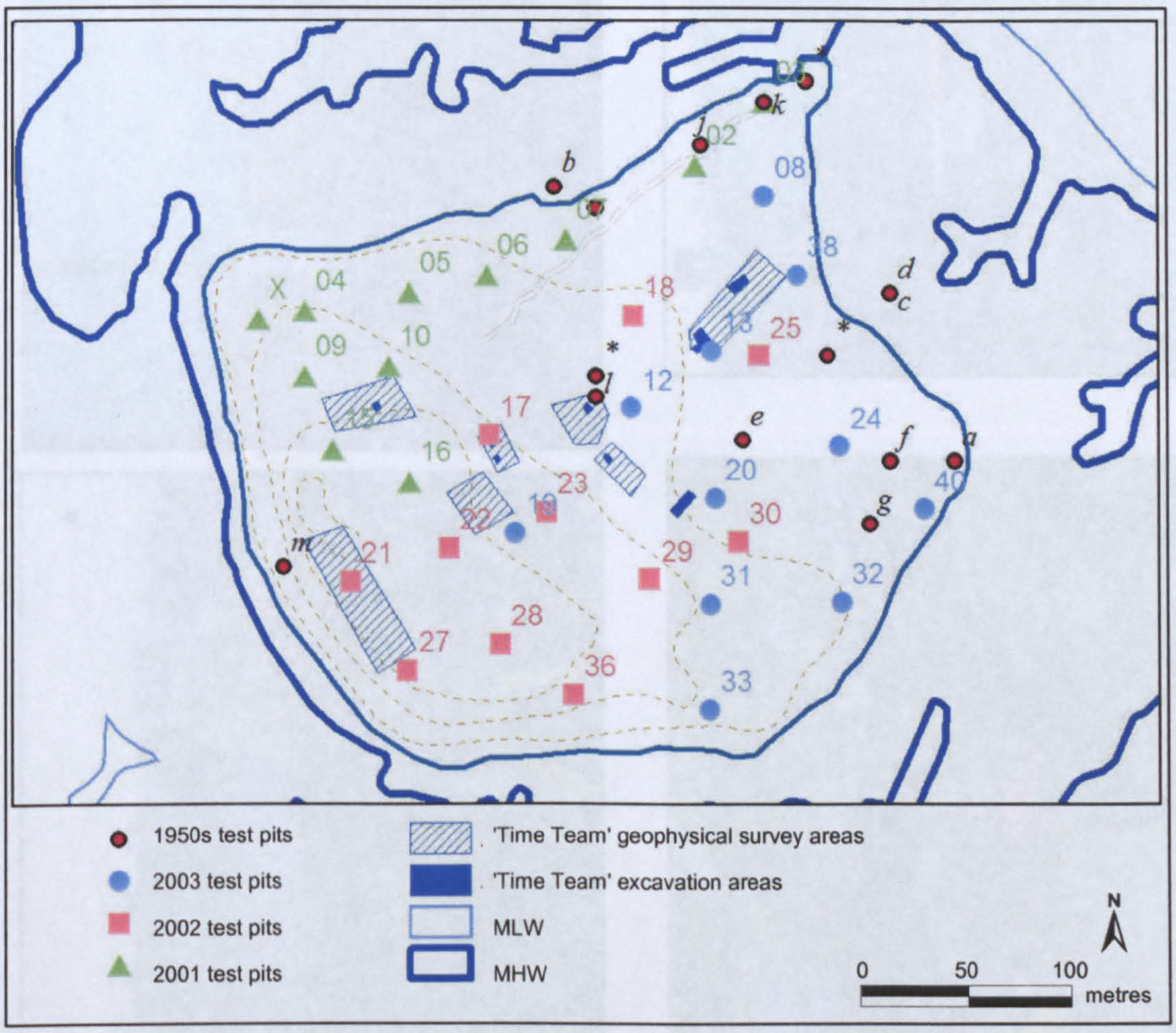


Figure 33: Ower Peninsula - anomalies detected by geophysical survey, outline of the southern 'jetty' in South Deep (determined by probing), and the projected line of the 'jetty' onto the peninsula.
(Base photograph Dorset County Council 1997; geophysical survey outline Cox and Hearne 1991, Figure 31.)



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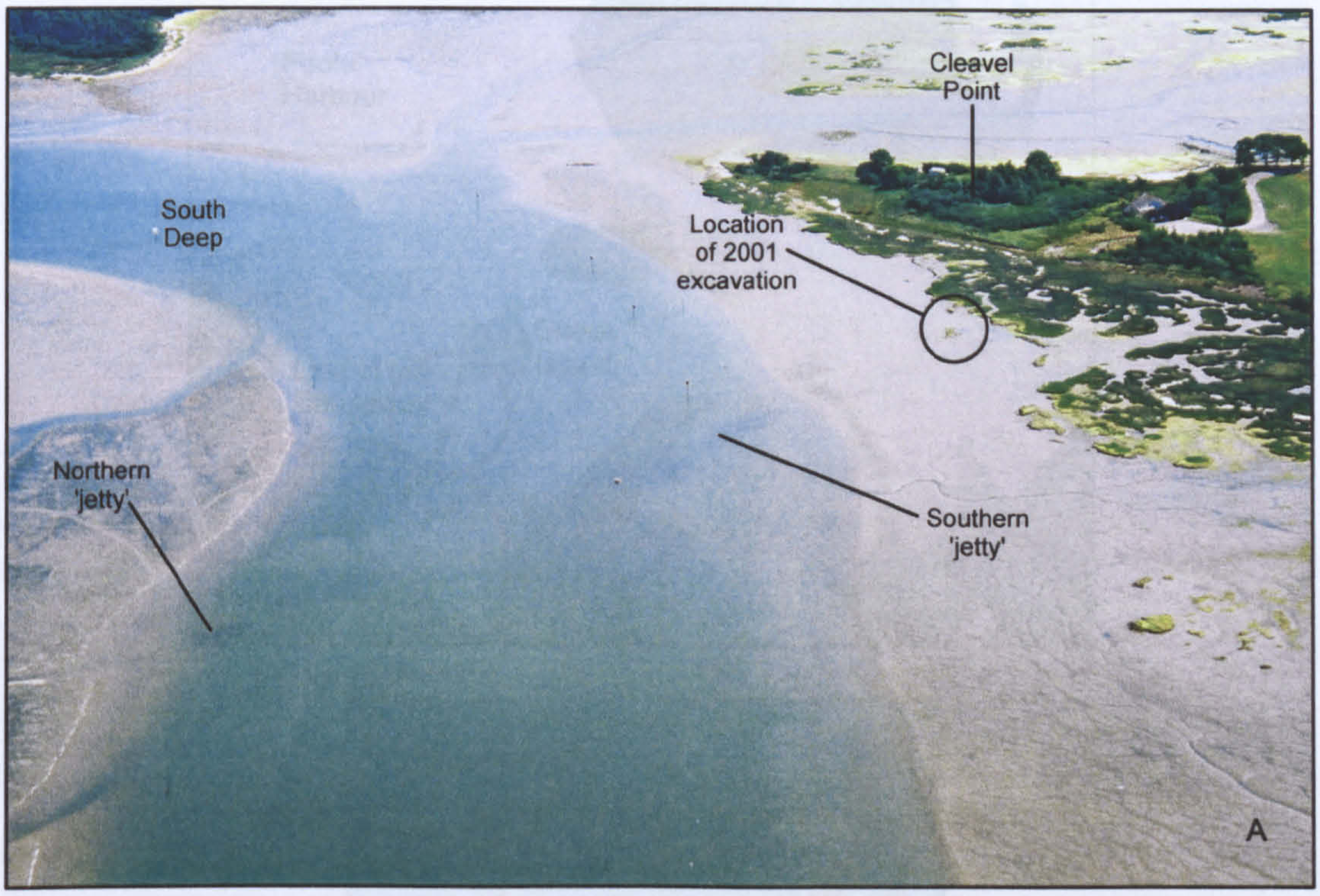
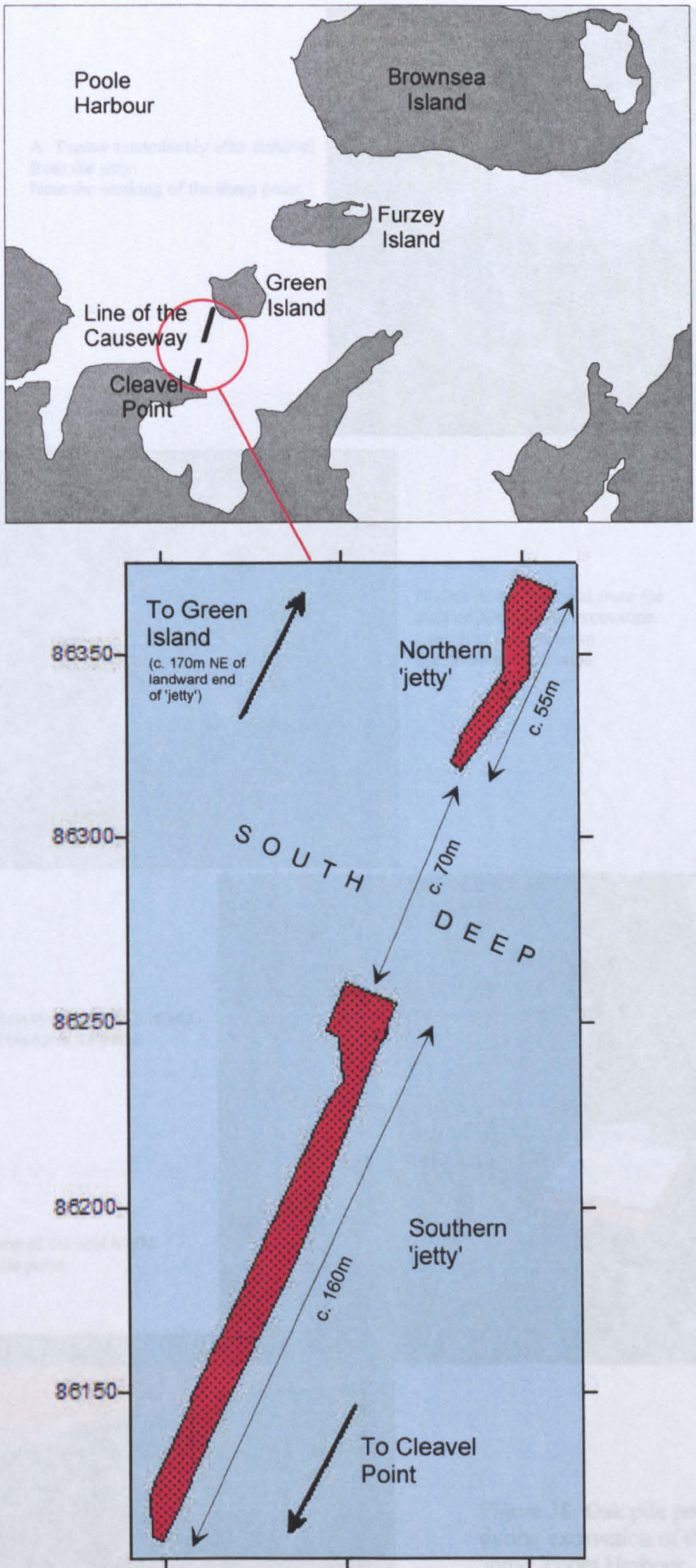
C - Recording the section (line is approximately on the surface of the structure) (photo: M A'Court).
D - Section through the 'jetty' showing brushwood and timber pile.

Figure 35: Excavation of the southern 'jetty', August 2001.



A: View approximately south-west from the air over South Deep, 10 July 2003.
The two 'jetties' are just visible beneath the surface of the water.
B: Looking along the southern 'jetty' towards South Deep, 27 March 2002.
The conditions required for the 'jetties'' to break the water surface in this way at very low water rarely occur.

Figure 36: Two 'jetties' running into South Deep, Poole Harbour.



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A: Timber immediately after removal from the jetty.
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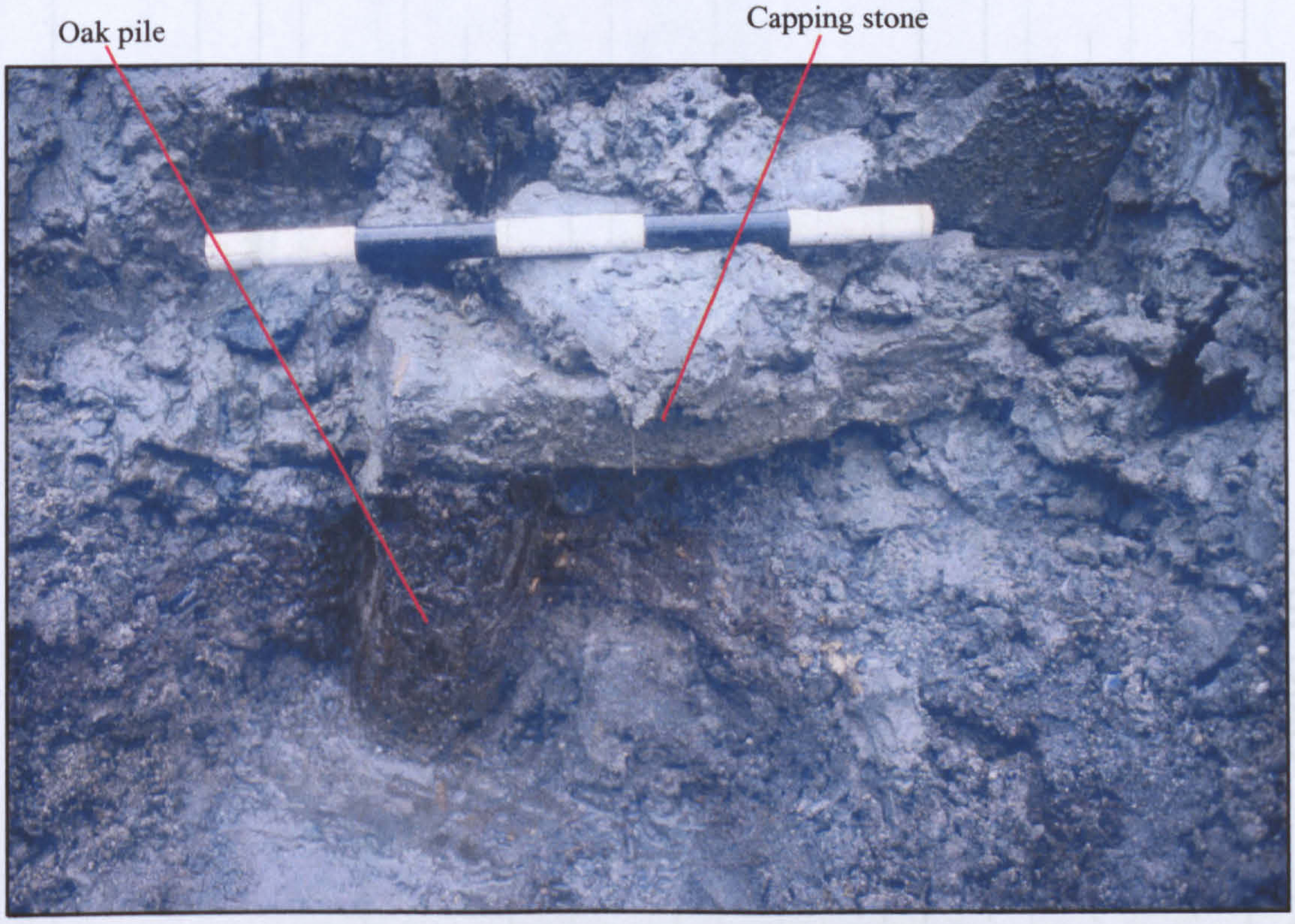
C: Recording an oak pile and tool marks at its point.

D: Closer view of the tool marks on the oak pile point.

Figure 38: Oak pile points retrieved during excavation of the southern 'jetty', Poole Harbour.
(Photos A and B: M A'Court).



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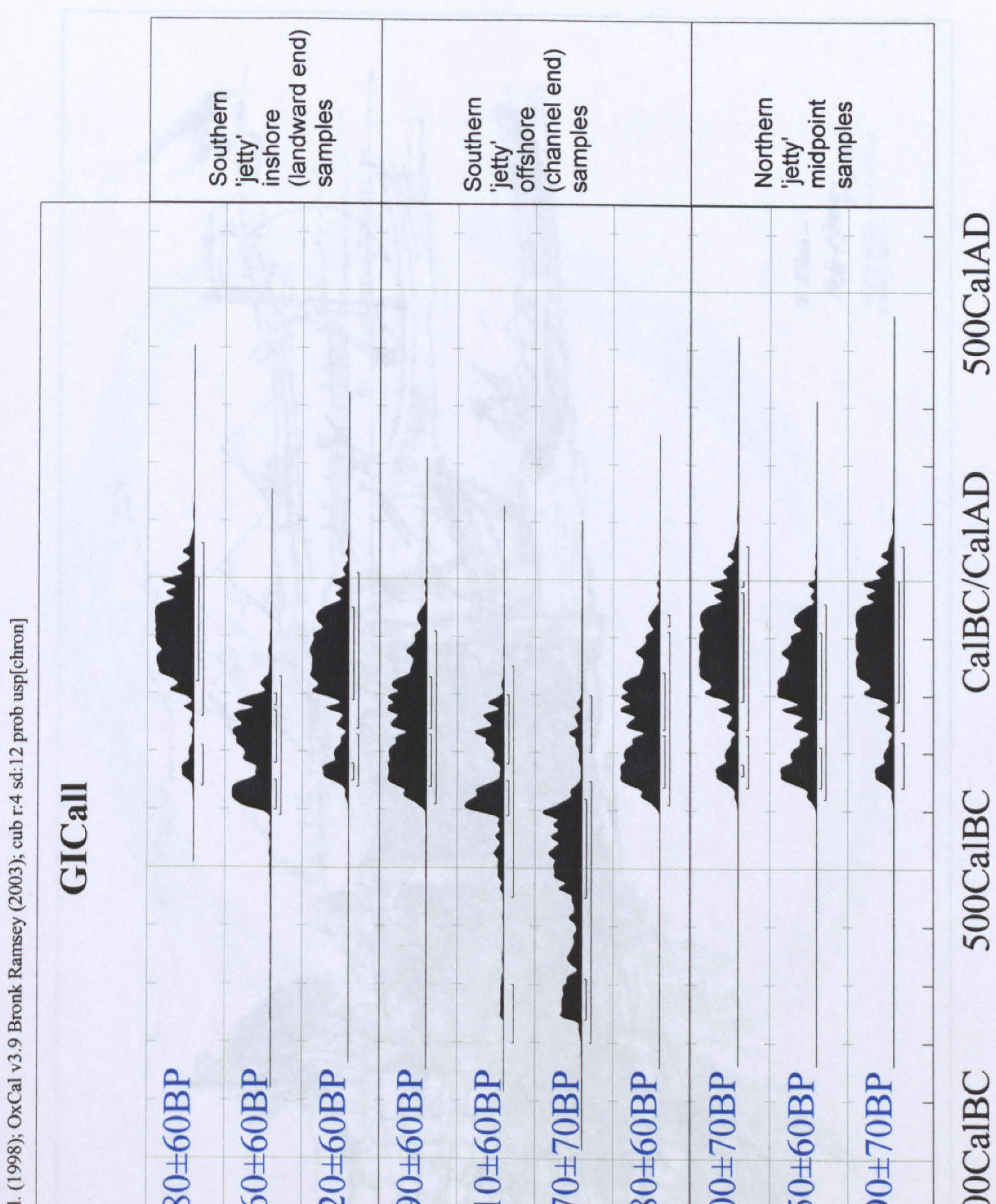

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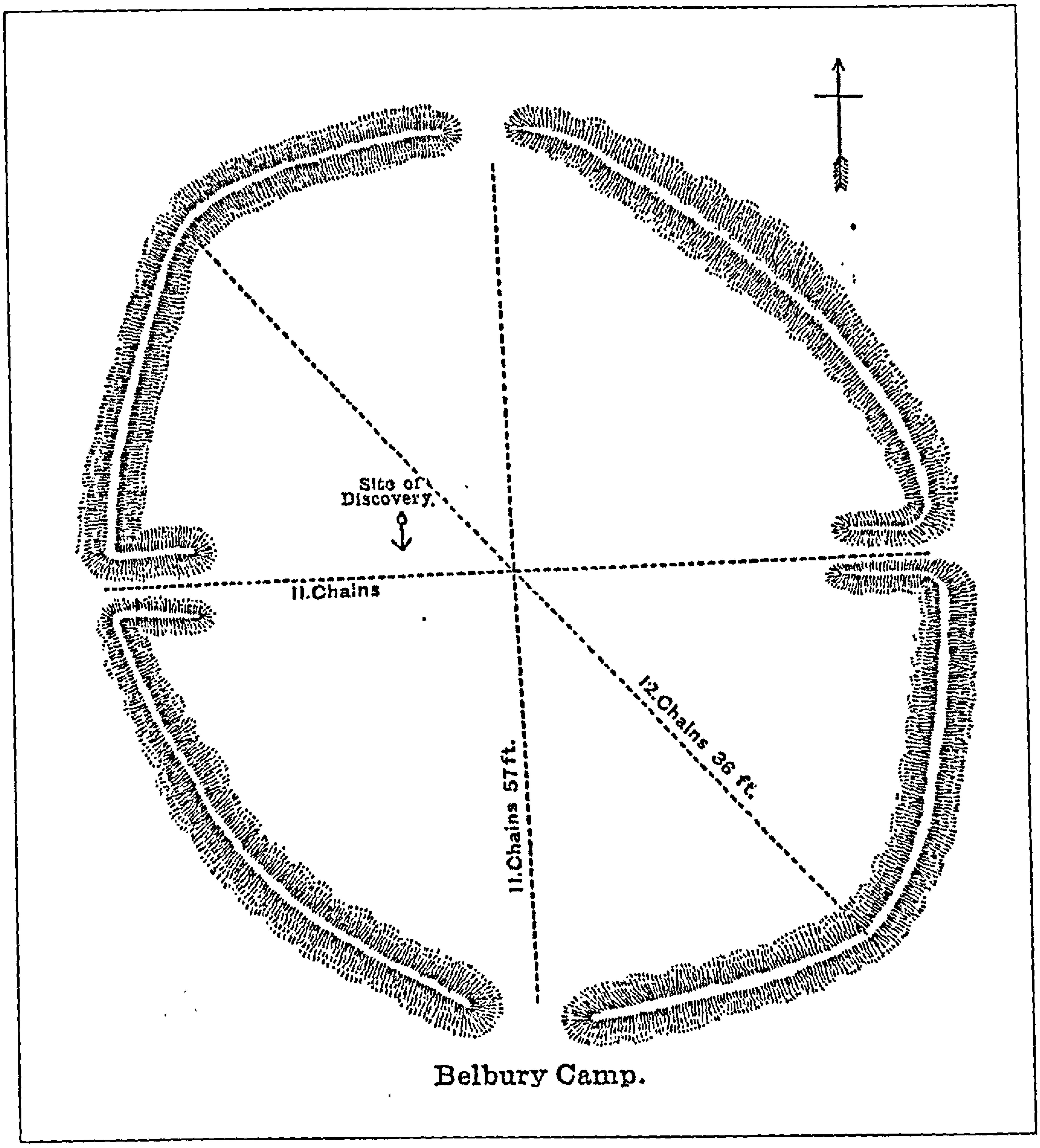


Figure 42: Cunnington's plan of Bulbury hillfort, north of Poole Harbour (Cunnington 1884, 116).

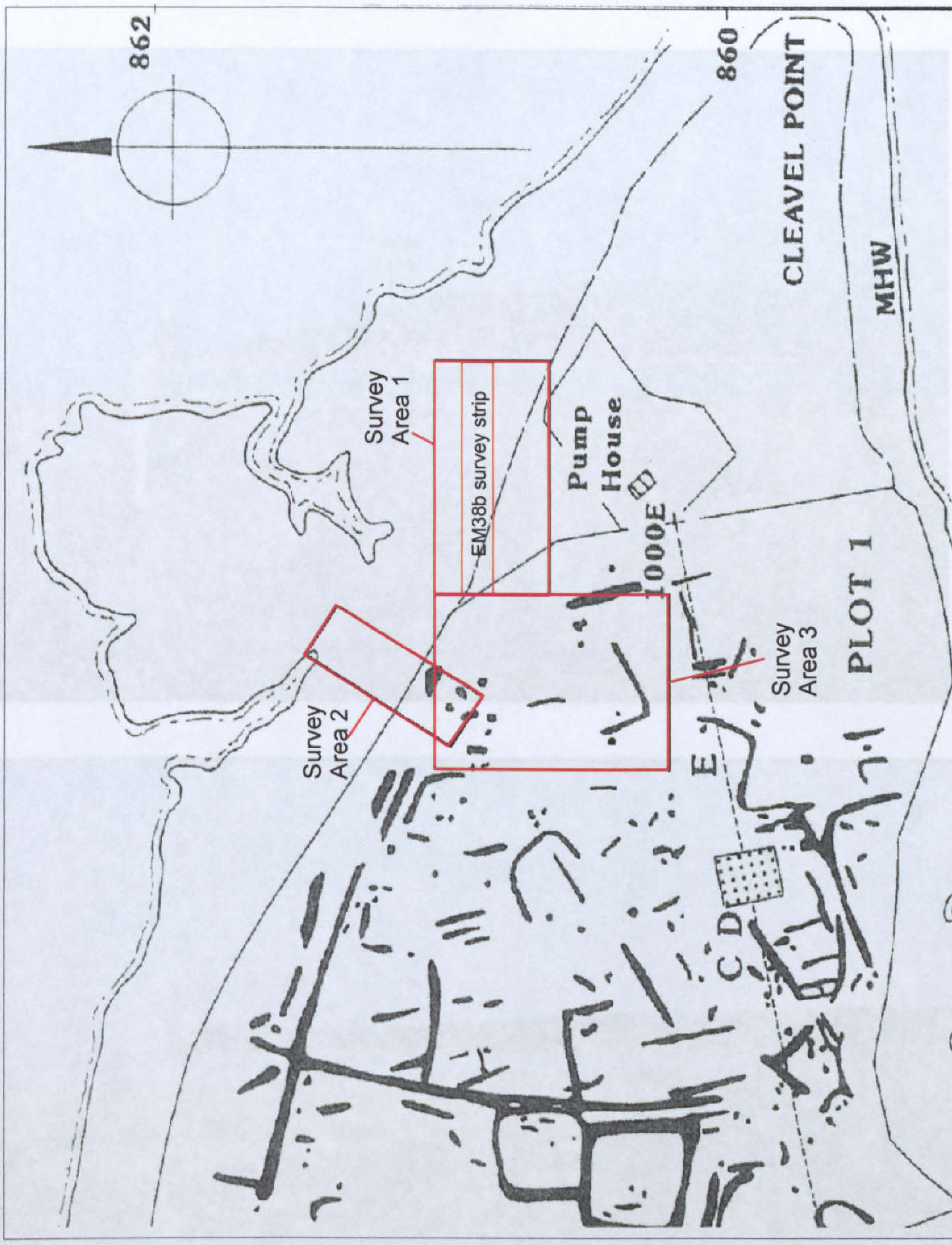
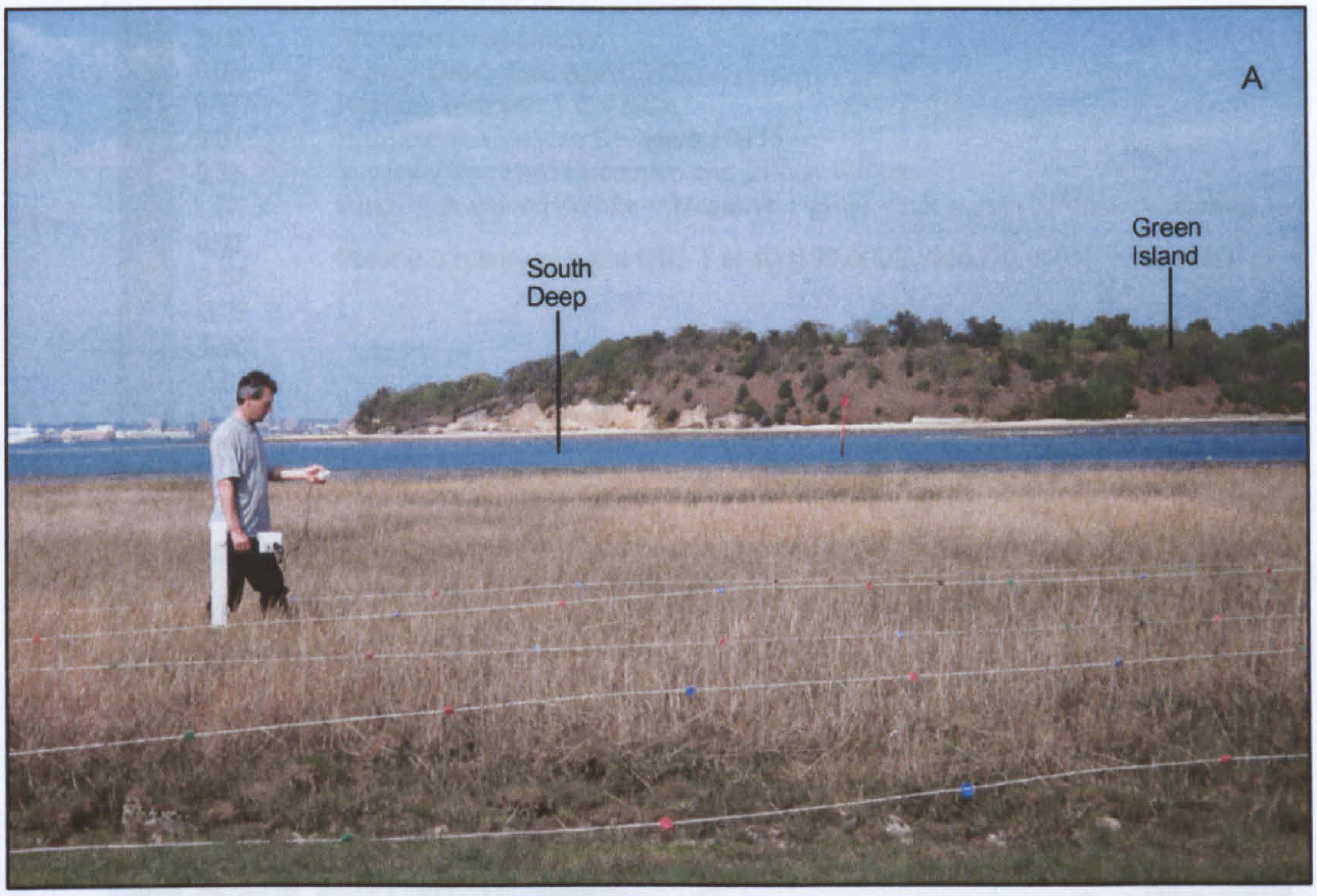


Figure 43: Positions of geophysical survey areas at Ower Peninsula, Poole Harbour. (Base plot from Cox and Hearne 1991, Figure 31).



A: Survey with FM36 in Area 1.
B: View from Area 3 into Area 1. Note soil erosion.

Figure 44: Geophysical survey at Ower Peninsula, Poole Harbour.

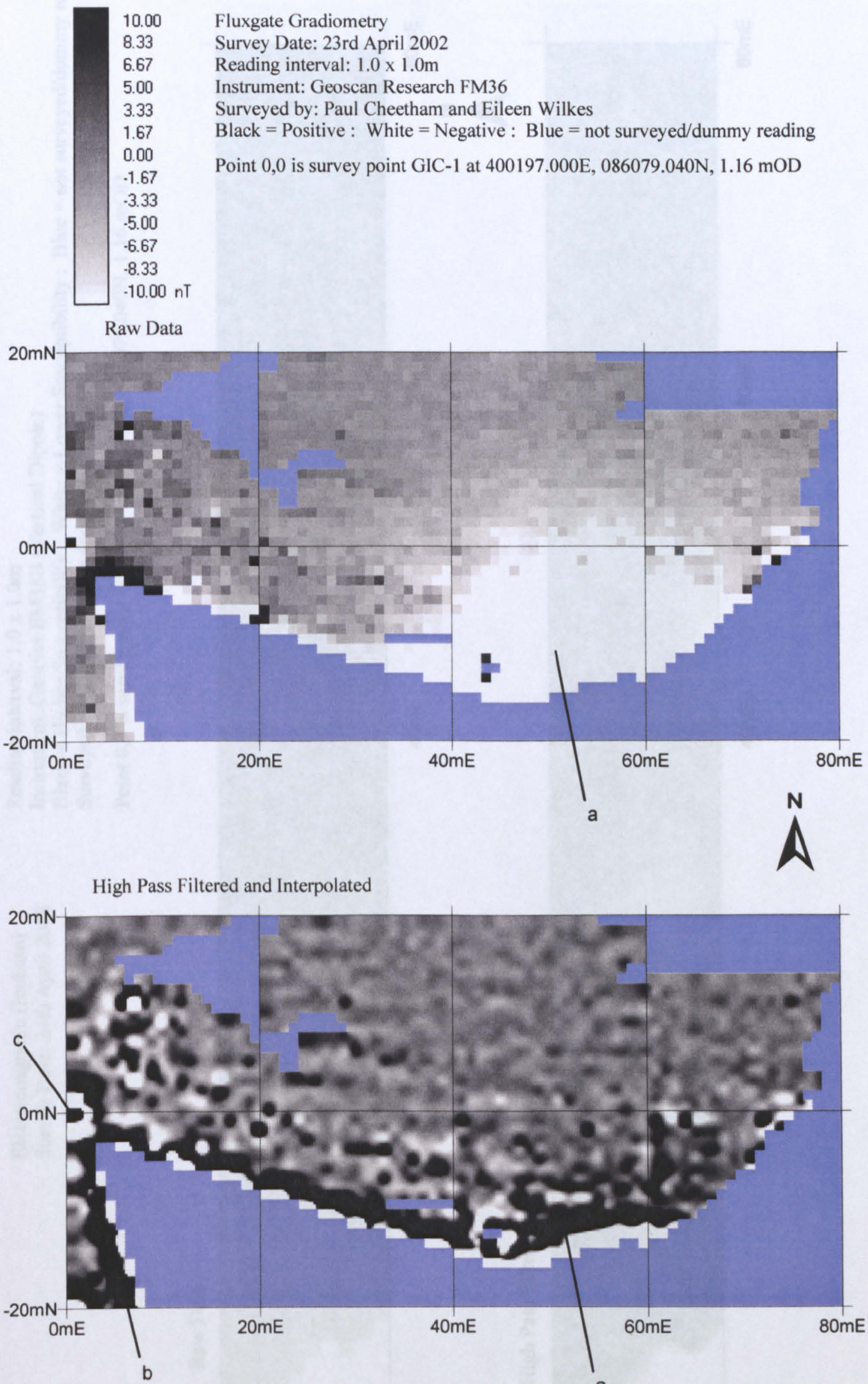


Figure 45: Ower Area 1: Fluxgate gradiometer raw and processed plots.

Electromagnetic (Inphase)
Survey Date: 24th April 2002

Reading interval: 1.0 x 1.0m
Instrument: Geonics EM38B (Vertical Dipole)
Black = Higher Susceptibility : White = Lower Susceptibility : Blue = not surveyed/dummy reading
Surveyed by: Paul Cheetham and Eileen Wilkes

Point 0,0 is survey point GIC-1 at 400197.000E, 086079.040N, 1.16 mOD

Figure 46: Ower Area 1: Electromagnetic (inphase) raw and processed plots.

Figure 47: Ower Area 1: Electromagnetic (quadrature) raw and processed plots.

Fluxgate Gradiometry
Survey Date: 25th April 2002

Reading interval: 1.0 x 1.0m
Instrument: Geoscan Research FM36
Black = Positive : White = Negative : Blue = not surveyed/dummy reading
Surveyed by: Paul Cheetham and Eileen Wilkes

Point 0,0 is at 400144.303E, 86094.043N, 1.815 mOD.

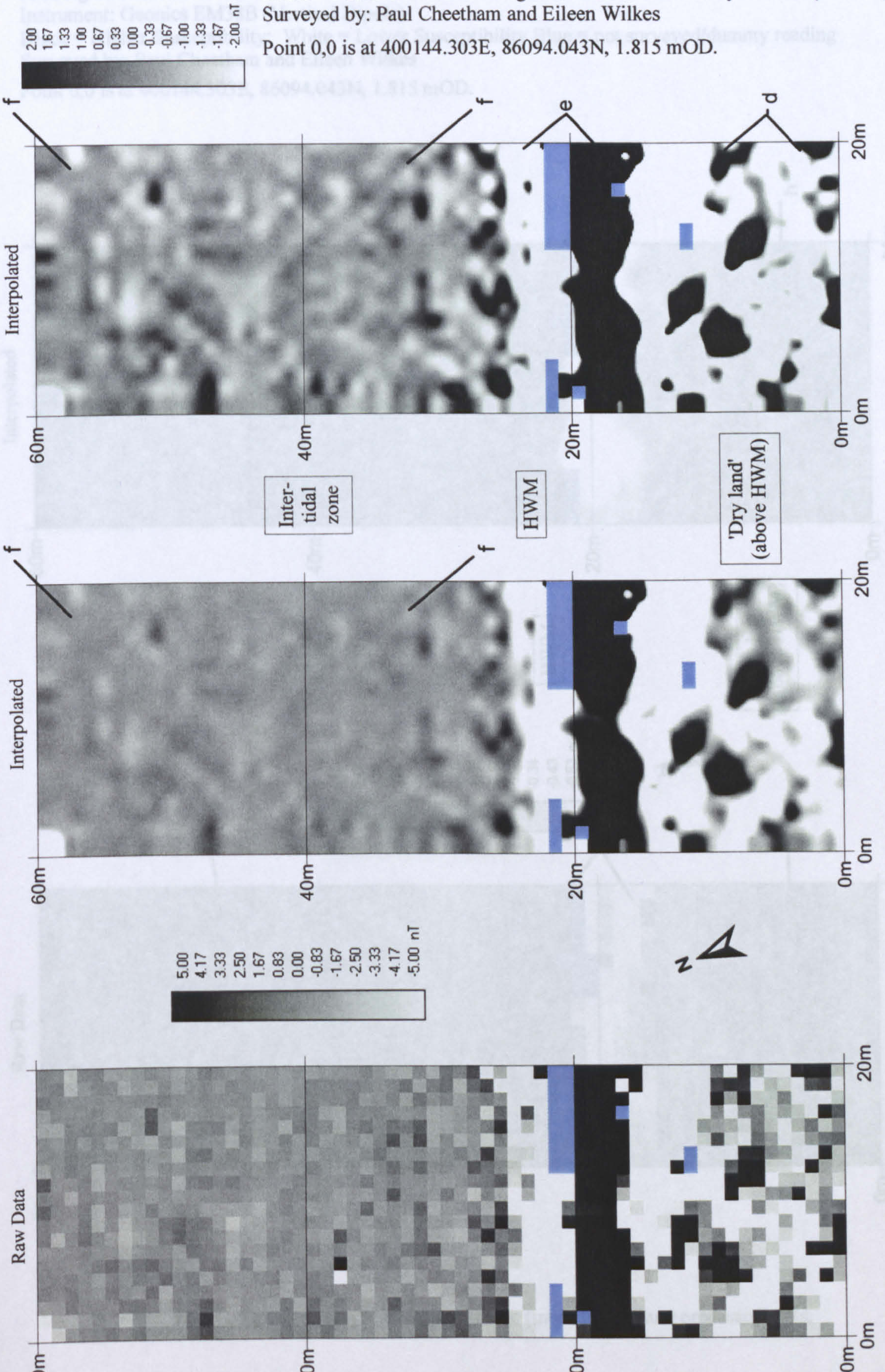


Figure 48: Ower Area 2: Fluxgate gradiometer raw and processed plots.

Electromagnetic (Inphase)
Survey Date: 25th April 2002

Reading interval: 1.0 x 1.0m
Instrument: Geonics EM38B (Vertical Dipole)
Black = Higher Susceptibility: White = Lower Susceptibility Blue = not surveyed/dummy reading
Surveyed by: Paul Cheetham and Eileen Wilkes

Point 0,0 is at 400144.303E, 86094.043N, 1.815 mOD.

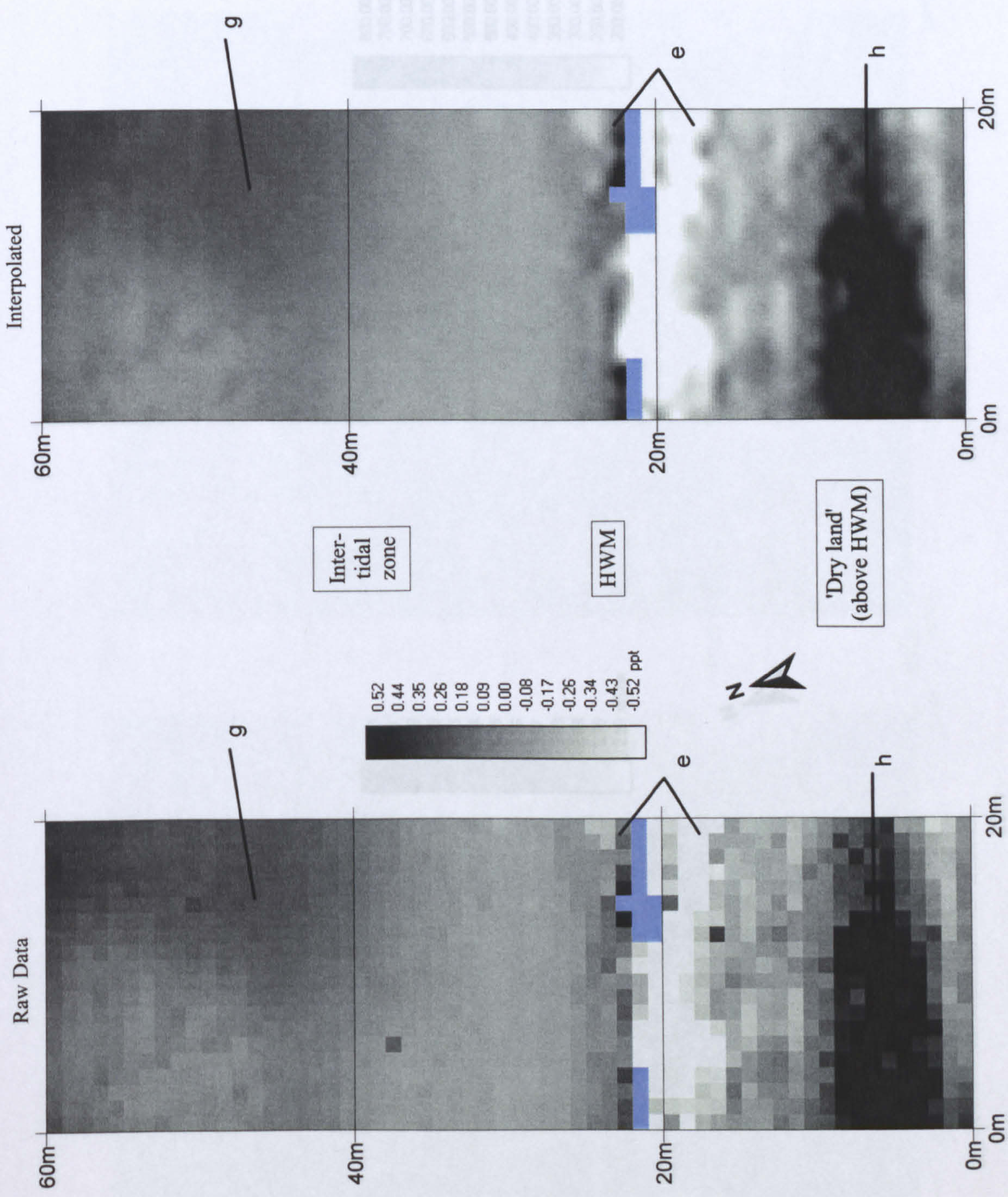


Figure 49: Ower Area 2: Electromagnetic (inphase) raw and processed plots.

Electromagnetic (Quadrature)
Survey Date: 25th April 2002

Reading interval: 1.0 x 1.0m
Instrument: Geonics EM38B (Vertical Dipole)
Black = Higher Conductivity : White = Lower Conductivity: Blue = not surveyed/dummy reading
Surveyed by: Paul Cheetham and Eileen Wilkes

Point 0,0 is at 400144.303E, 86094.043N, 1.815 mOD.

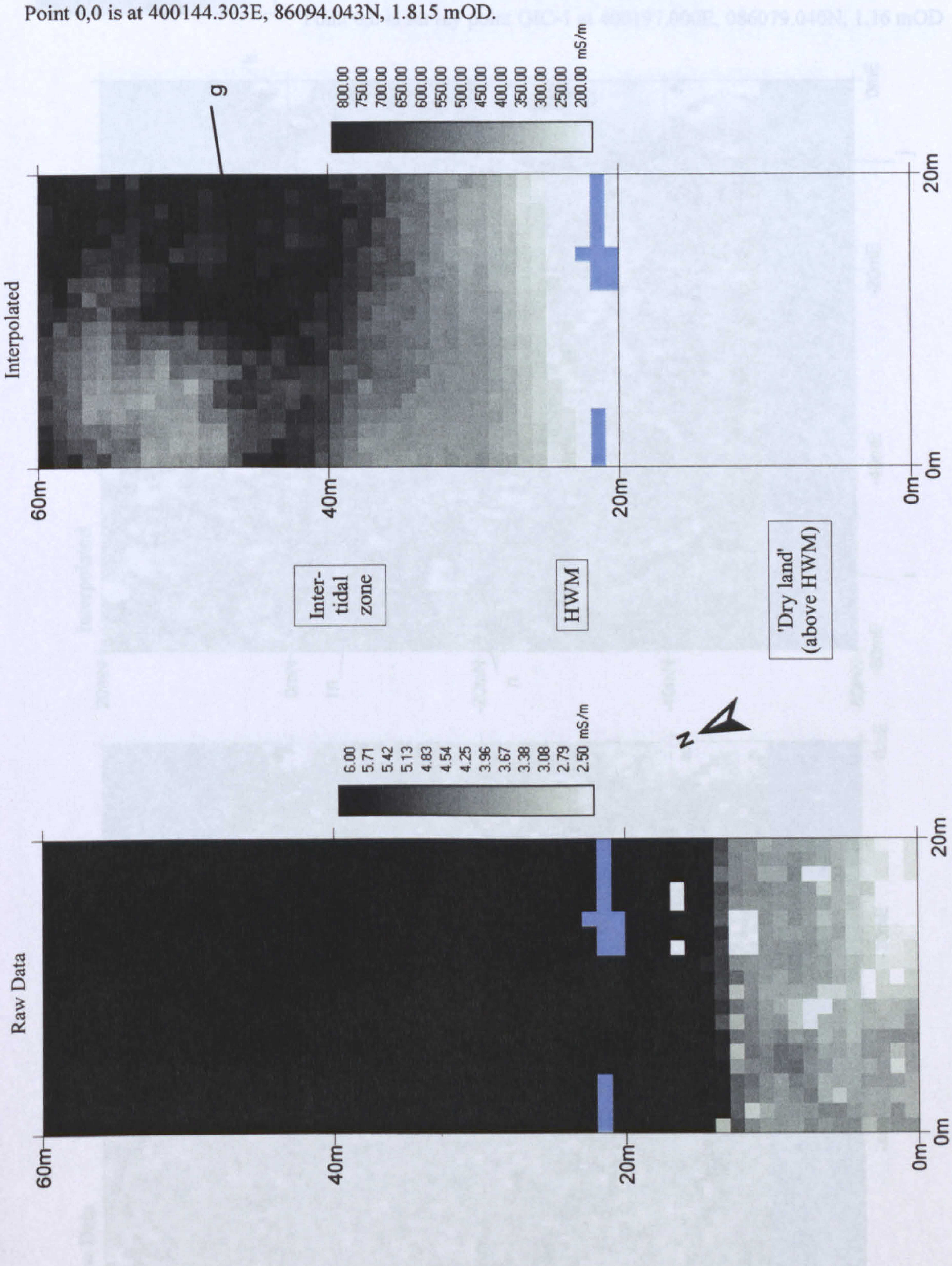
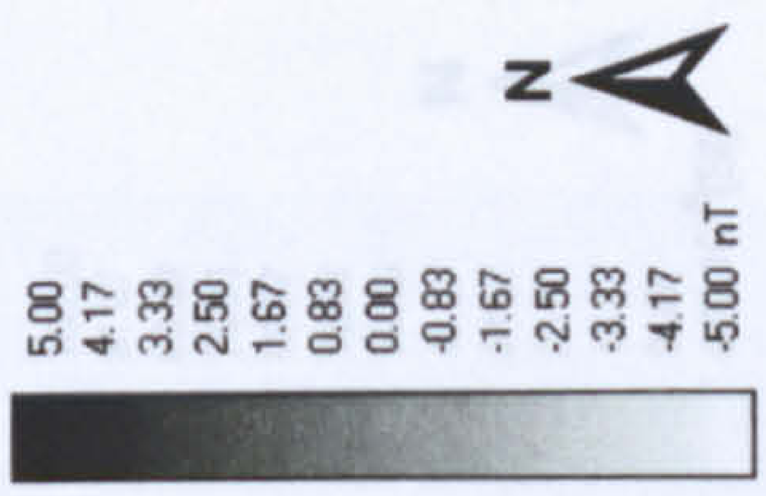


Figure 50: Ower Area 2: Electromagnetic (quadrature) raw and processed plots.



Fluxgate Gradiometry
Survey Date: 2nd October 2001
Reading interval: 0.5 along traverses and 1.0m between traverses
Instrument: Geoscan Research FM36
Black = Positive : White = Negative : Blue = not surveyed/dummy reading
Surveyed by: Paul Cheetham and Roger Doonan
Point 0,0 is survey point GIC-1 at 400197.000E, 086079.040N, 1.16 mOD

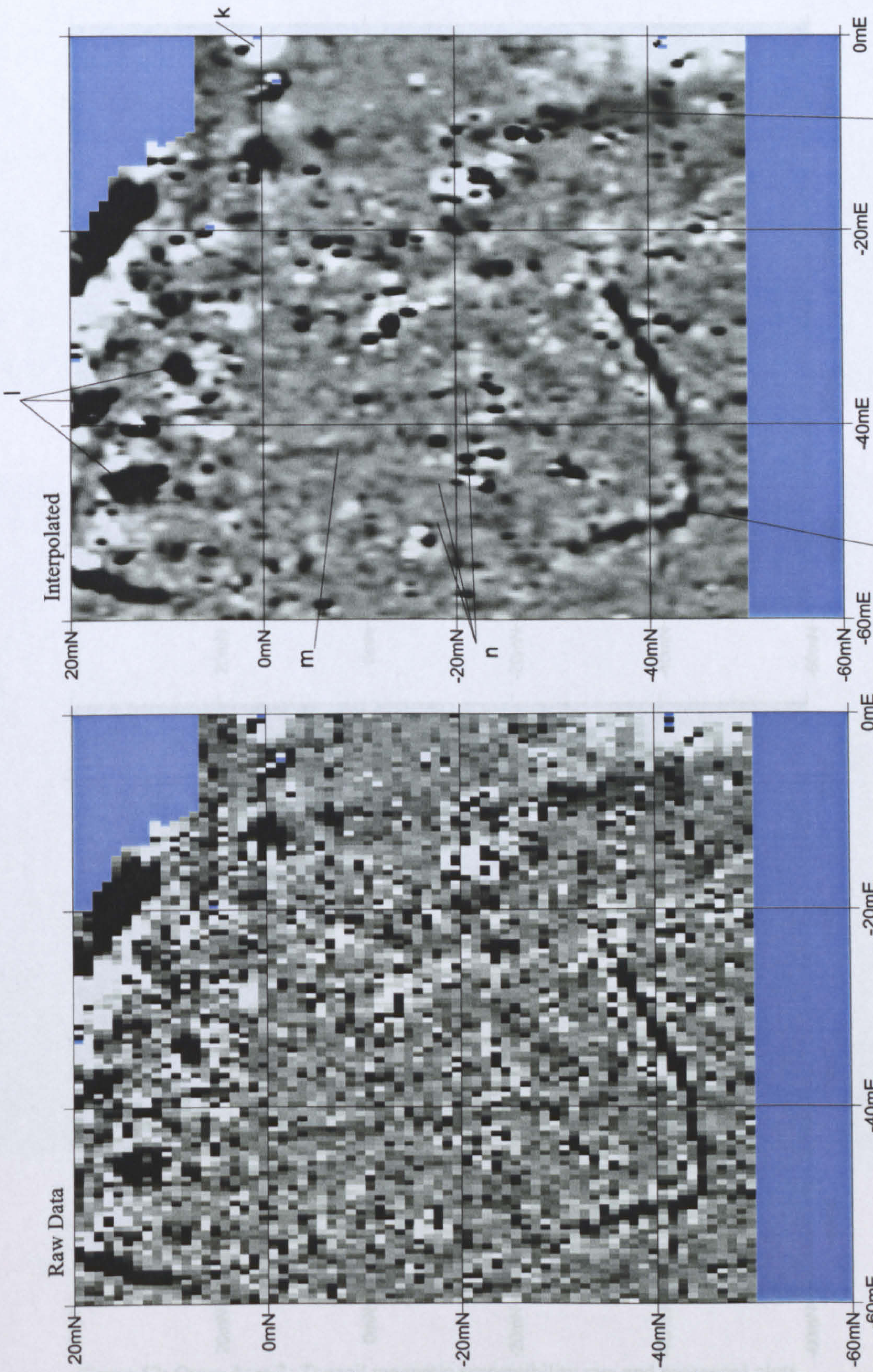


Figure 51: Ower Area 3: Fluxgate gradiometer raw and processed plots.

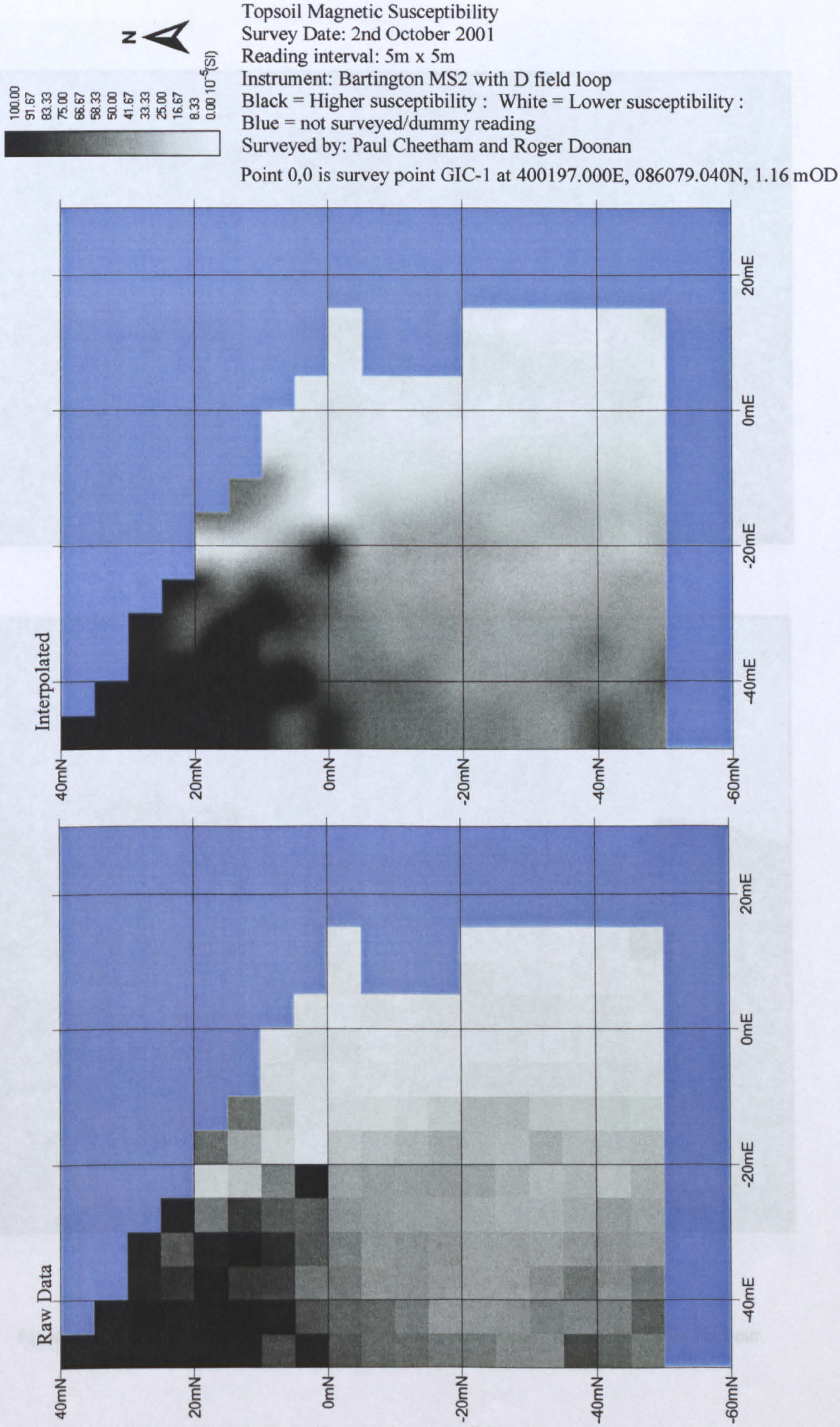


Figure 52: Ower Area 3: Topsoil magnetic susceptibility raw and processed plots.

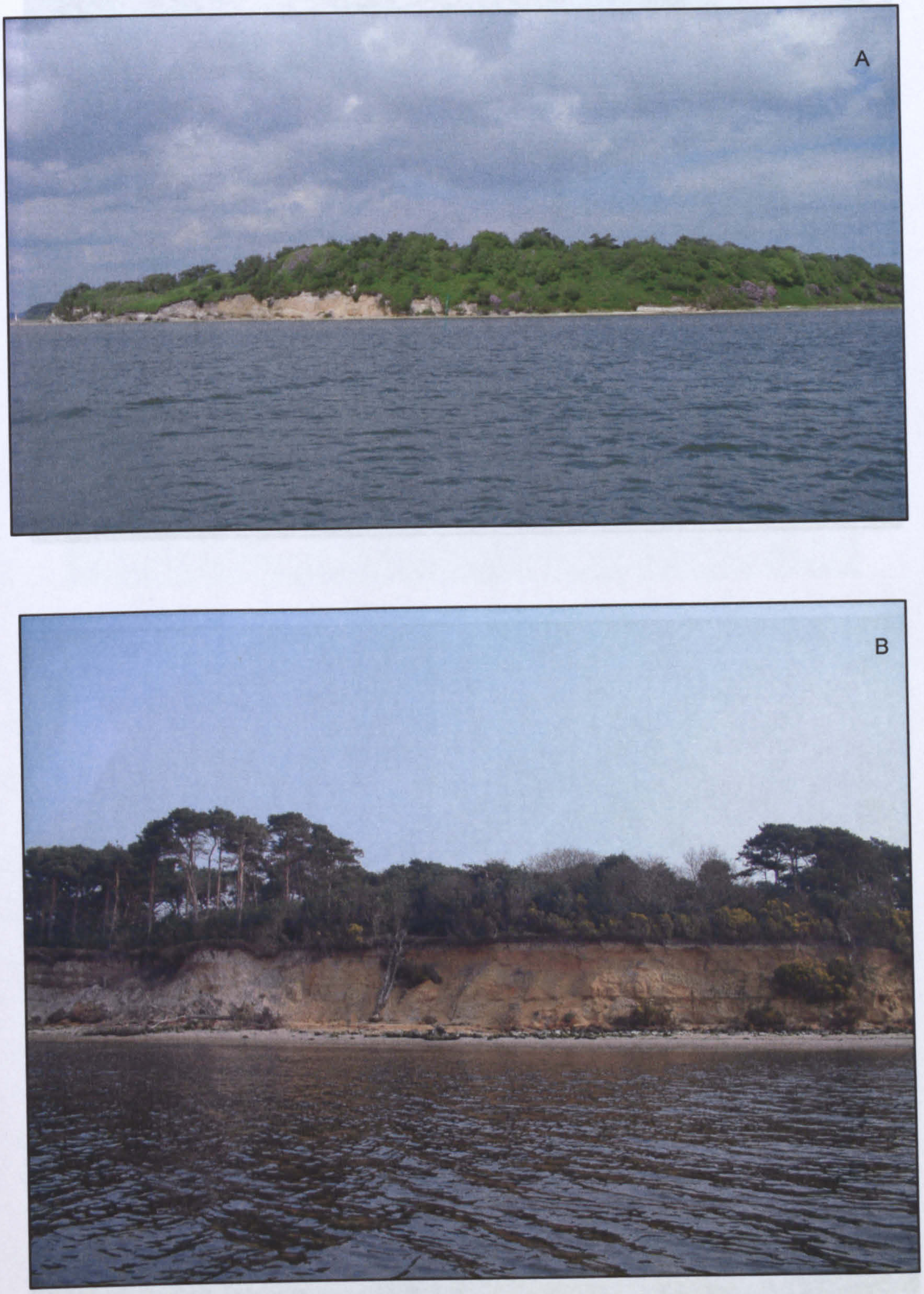


Figure 53: The eroding sand cliffs of Green Island (A) and Furzey Island (B), Poole Harbour.

Figure 54: Excavating and recording the 'wall' in Trench 1, Green Island, 2003. (Photo A: A Bromby)

Figure 55: Part of crucible retrieved from TP13, Green Island, 2003.
(Photo: S Hathaway).

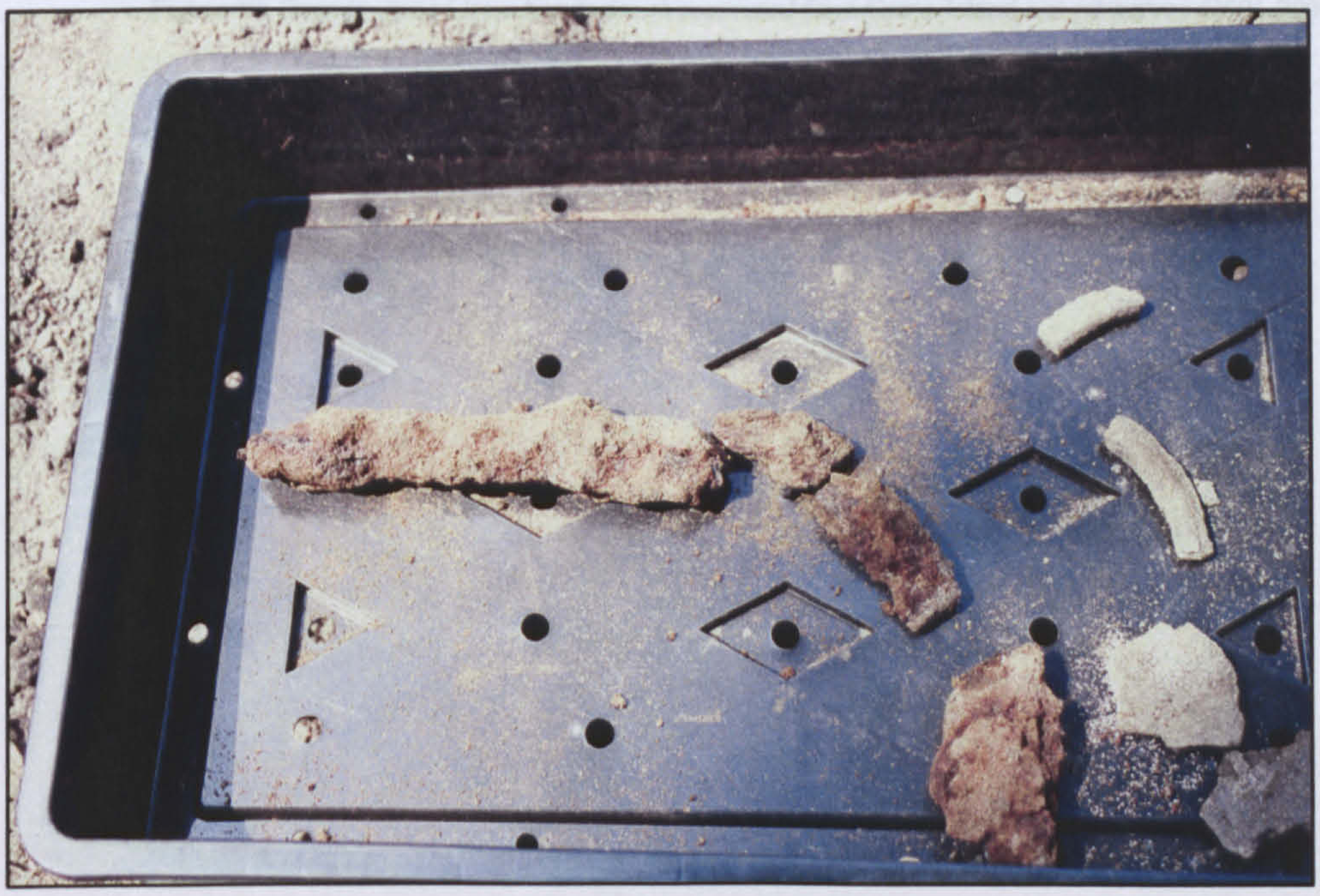


Figure 56: Iron and shale pieces retrieved from TP23, Green Island, 2002.
(Photo: M A'Court).

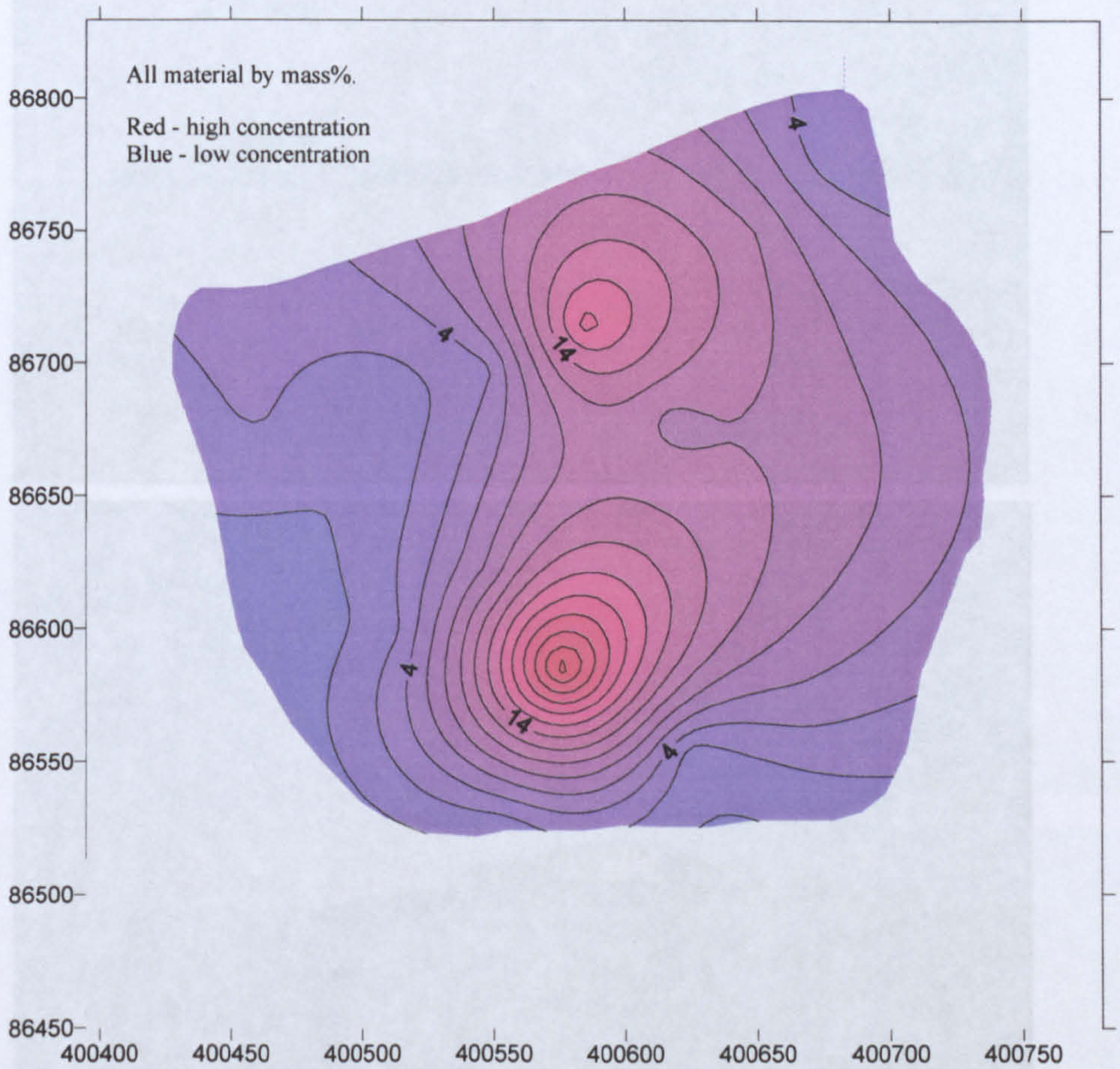


Figure 57: Density plot of Iron Age material recovered from Green Island test pit survey (2001-2003).

A: from Bantham. B and C: from Bigbury on Sea.

Figure 58: Views to Burgh Island, Bigbury Bay, showing the causeway, Octber 2002.

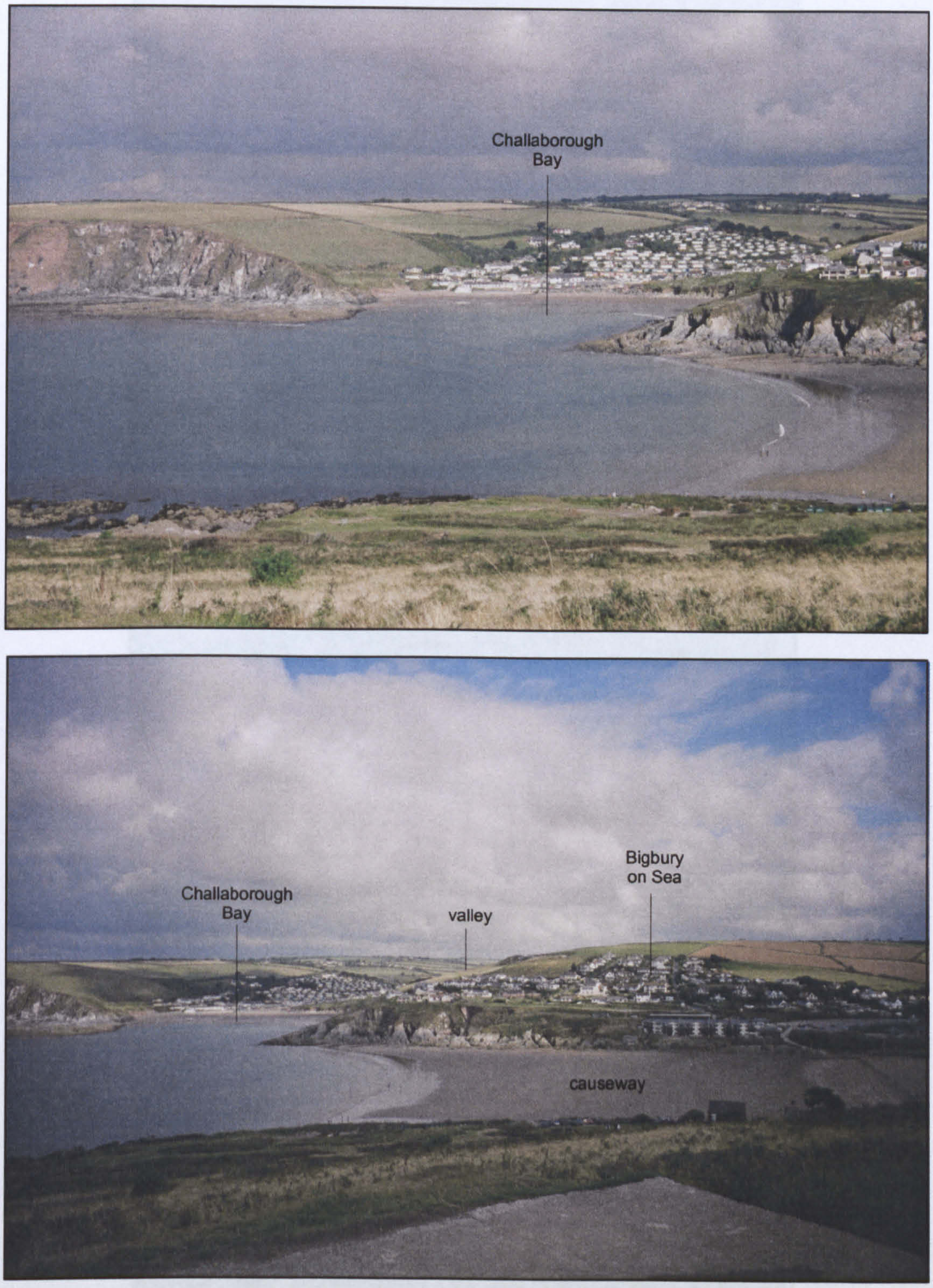
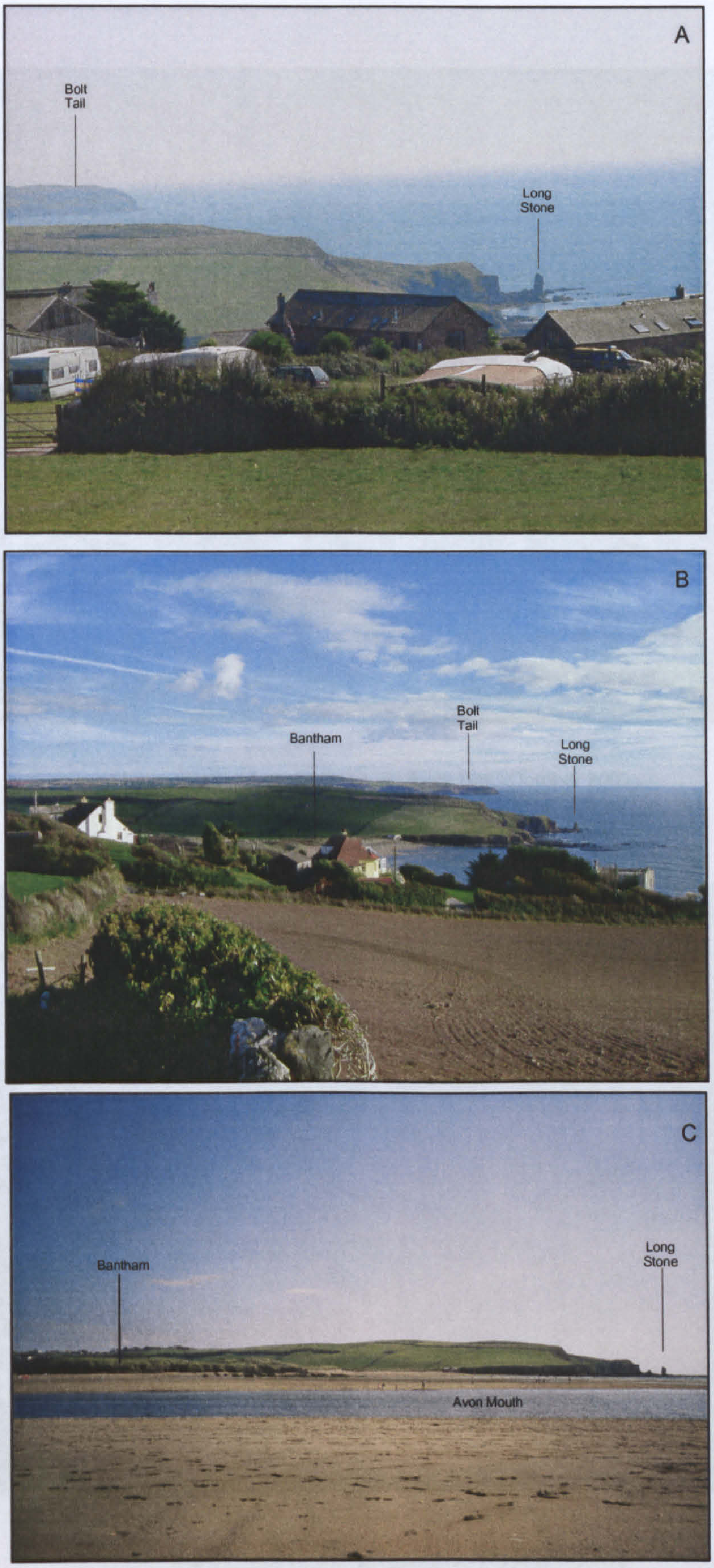


Figure 59: Views of Challaborough Bay from Burgh Island, Bigbury Bay, October 2002.

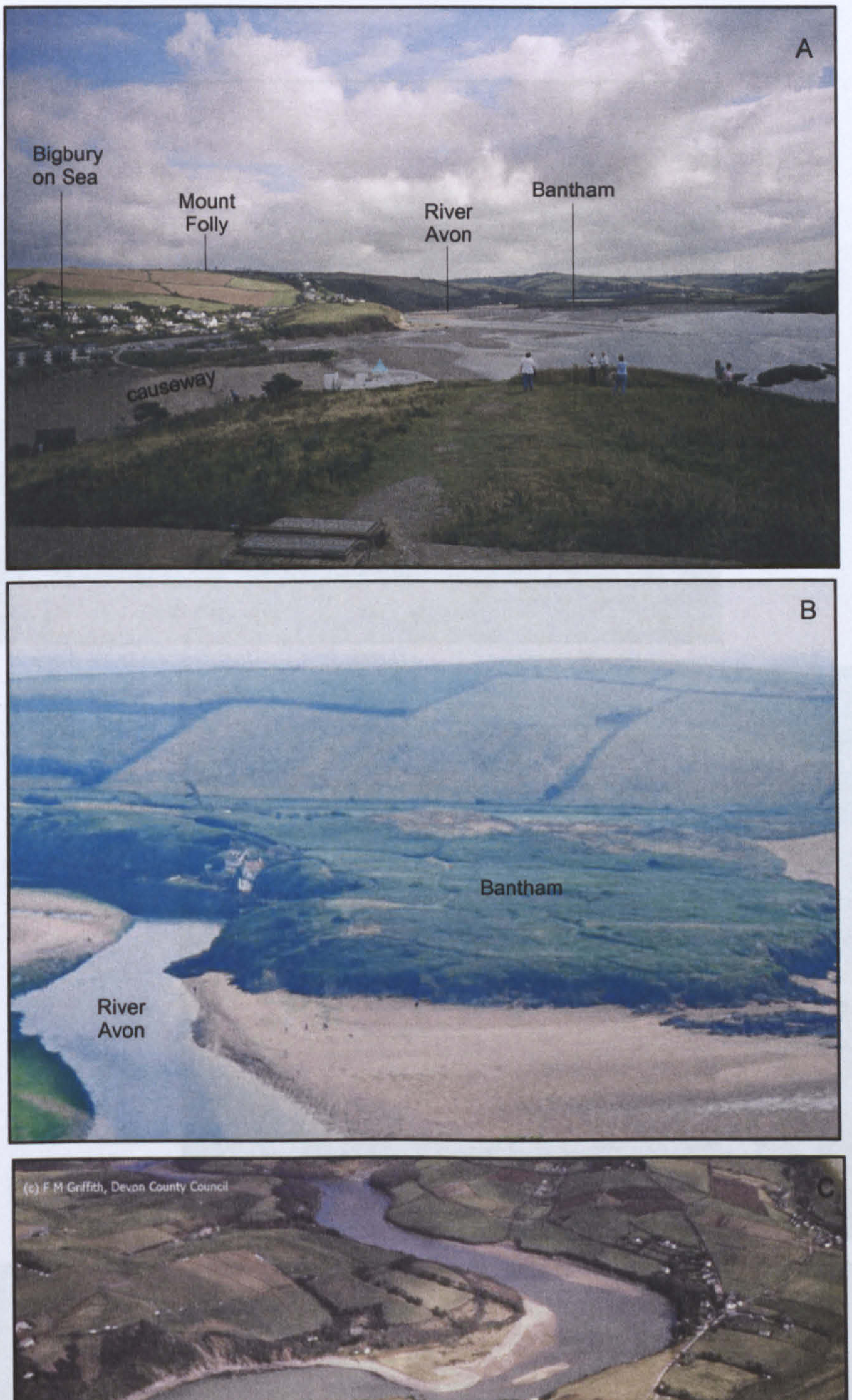


A: From Mount Folly, September 2003; B: From Mount Folly, September 2004; C: From Avon Mouth, October 2002.

Figure 60: Views to the Long Stone, Bolt Tail and Bantham, Bigbury Bay.

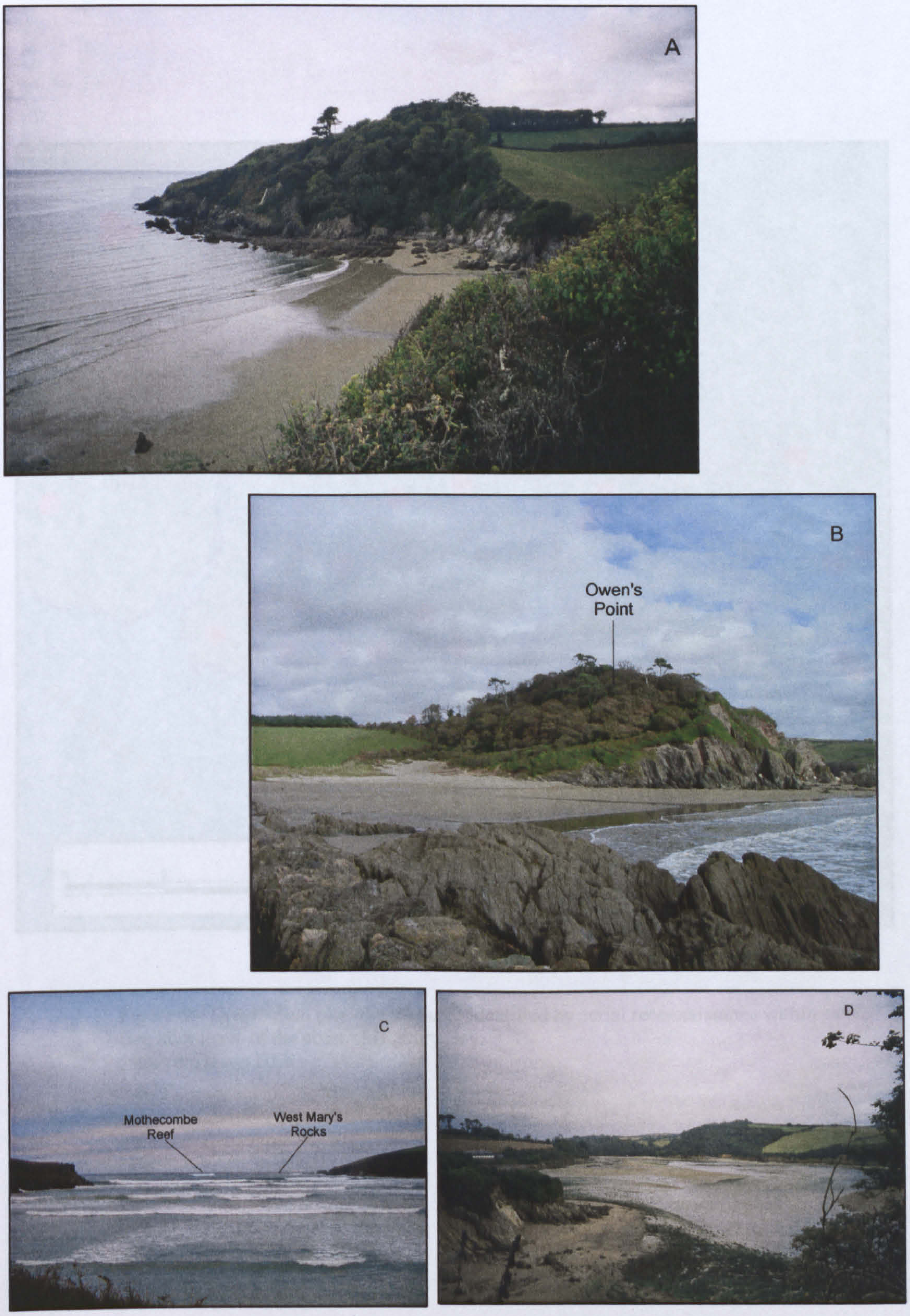
Figure 61: Thurlestone Cove, Bigbury Bay (October 2002).

Figure 62: Bolt Tail promontory fort, Bigbury Bay
(Photo: F Griffith, Devon County Council).



A: View to Bantham from Burgh Island (October 2002).
B: View to Bantham from Mount Folly (July 2003).
C: Aerial view of Bantham (F Griffith, Devon County Council).

Figure 63: Views of Bantham, Bigbury Bay.



A: View north-west across Meadowsfoot Beach from Owen's Point (October 2002)
B: View south-east across Meadowsfoot Beach to Owen's Point (September 2004)
C: View south through the mouth of the Erme Estuary into Bigbury Bay (September 2004)
D: View north-east along the Erme Estuary; note sand accumulation (October 2002)

Figure 64: Views at Mothecombe and Erme Mouth, Bigbury Bay.

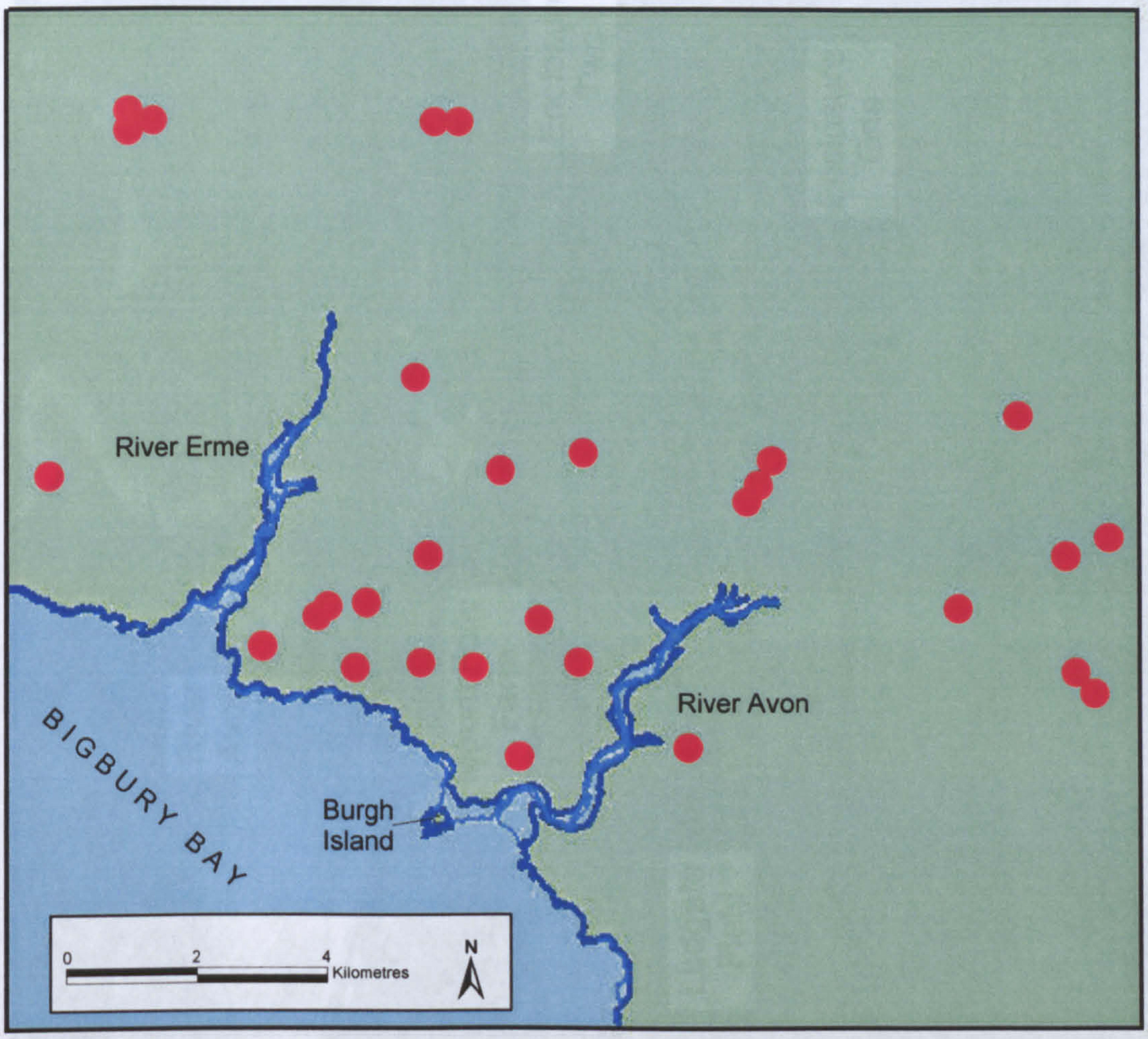


Figure 65: Distribution plot of enclosures identified by aerial reconnaissance within five kilometres of the coast of Bigbury Bay.
(Source: Devon HER)

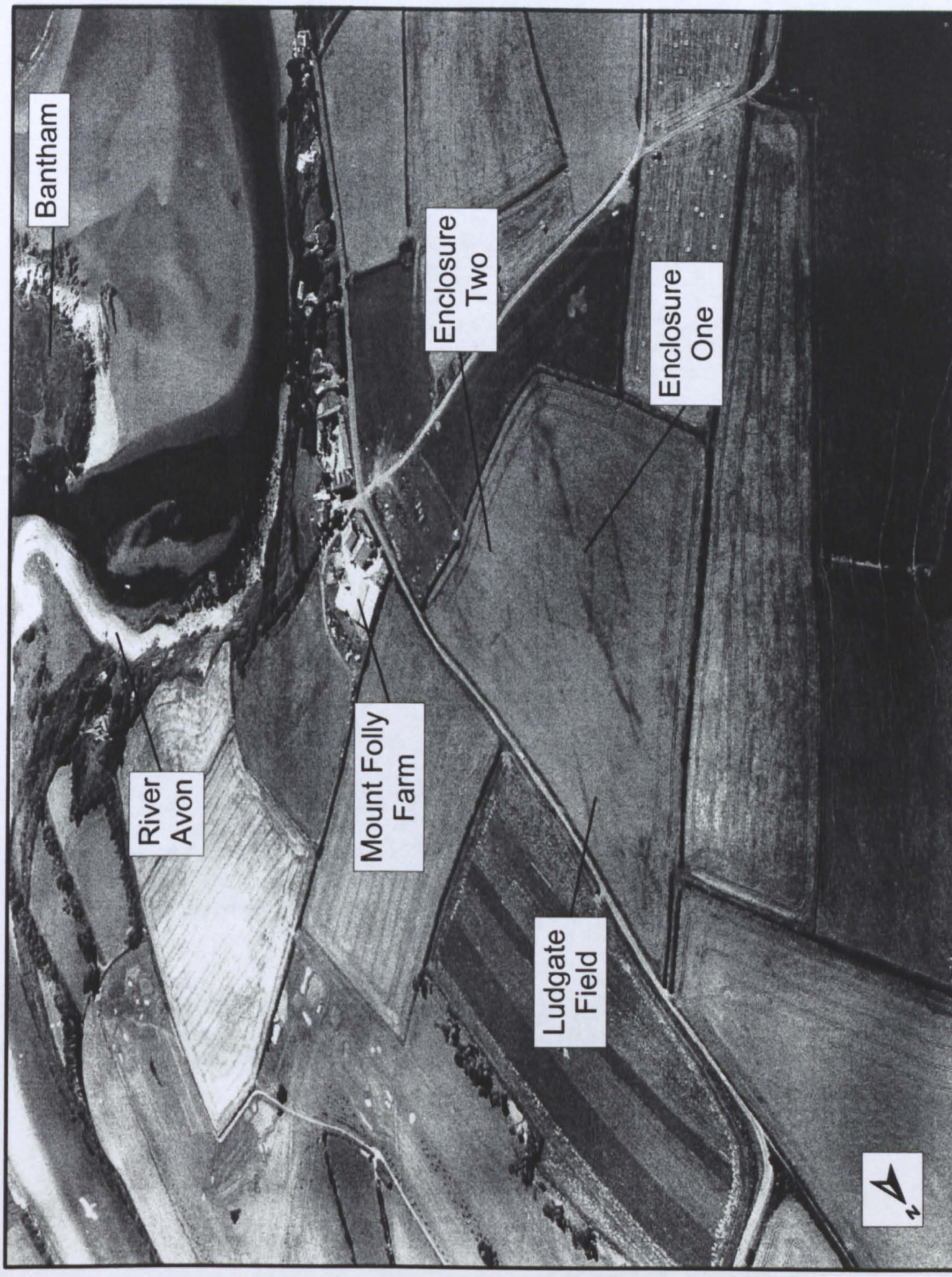


Figure 66: Aerial photograph of two crop marks in Ludgate Field, Bigbury Bay.
(Photo: F Griffith, Devon County Council, July 1989).

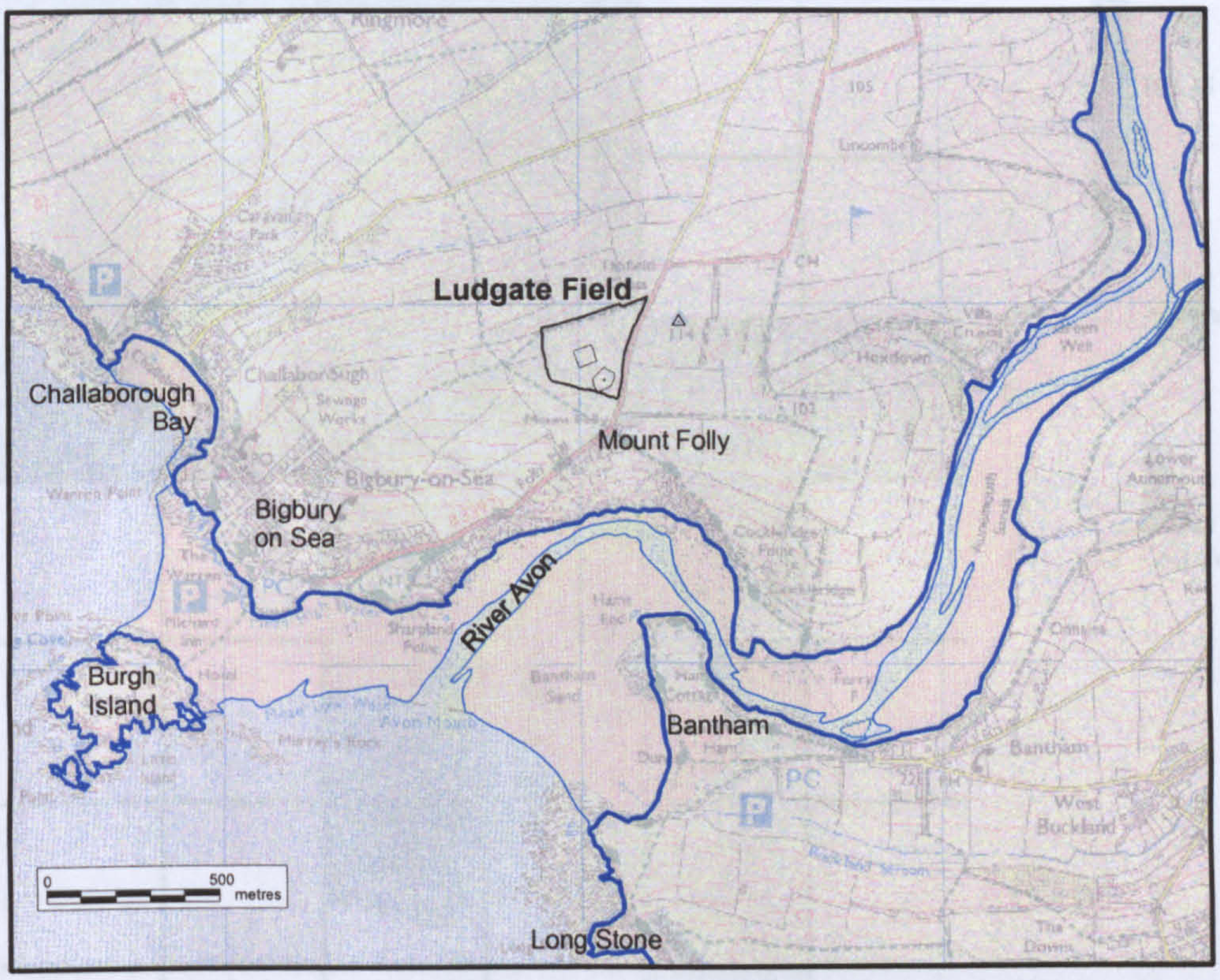


Figure 67: Location of Ludgate Field at Mount Folly, Bigbury Bay.
(Base map reproduced with kind permission of HMSO, Ordnance Survey
Outdoor Leisure Map 20, 1995, 1:25000).

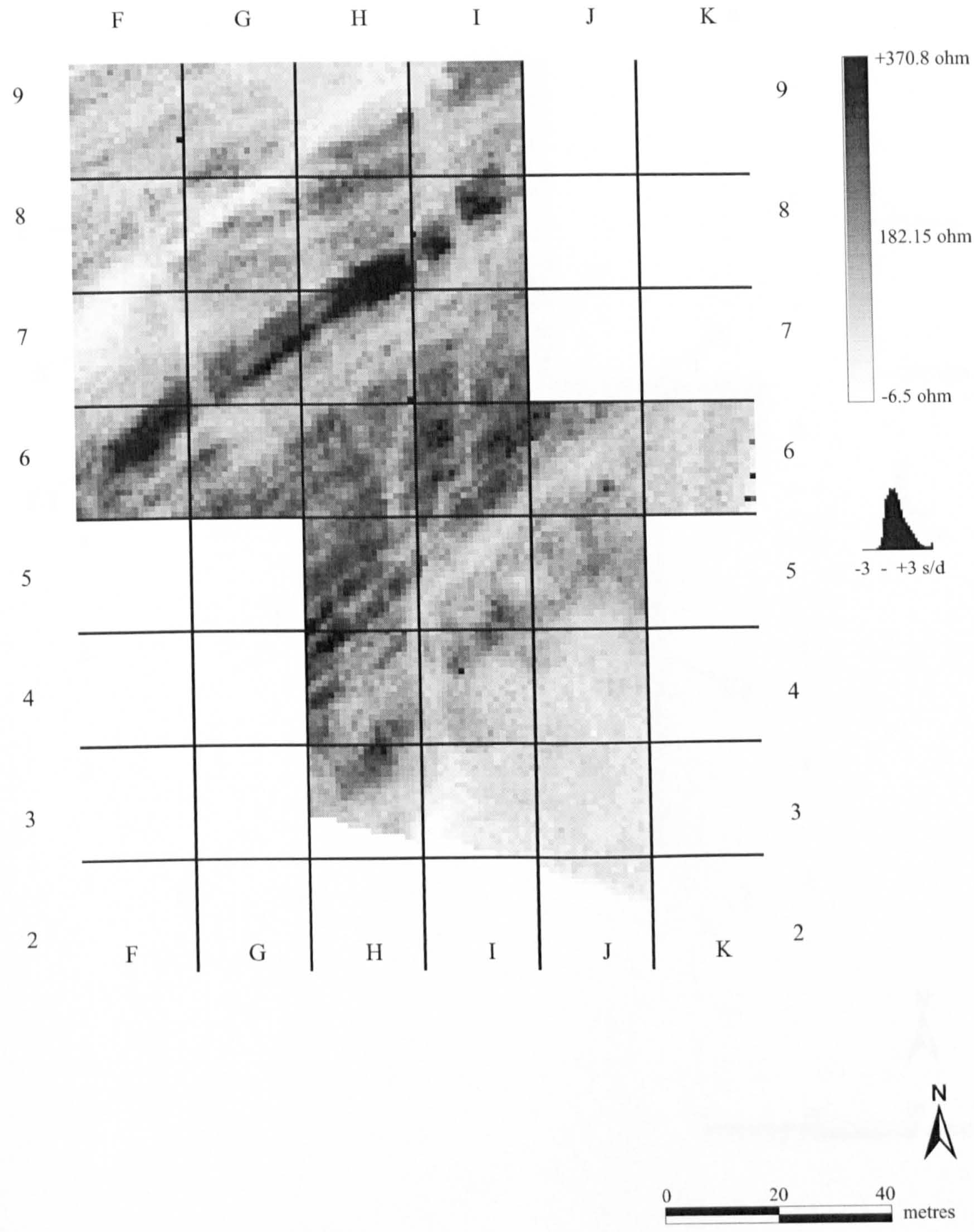


Figure 68: Unprocessed plot of RM15 resistivity survey, Ludgate Field, Mount Folly.

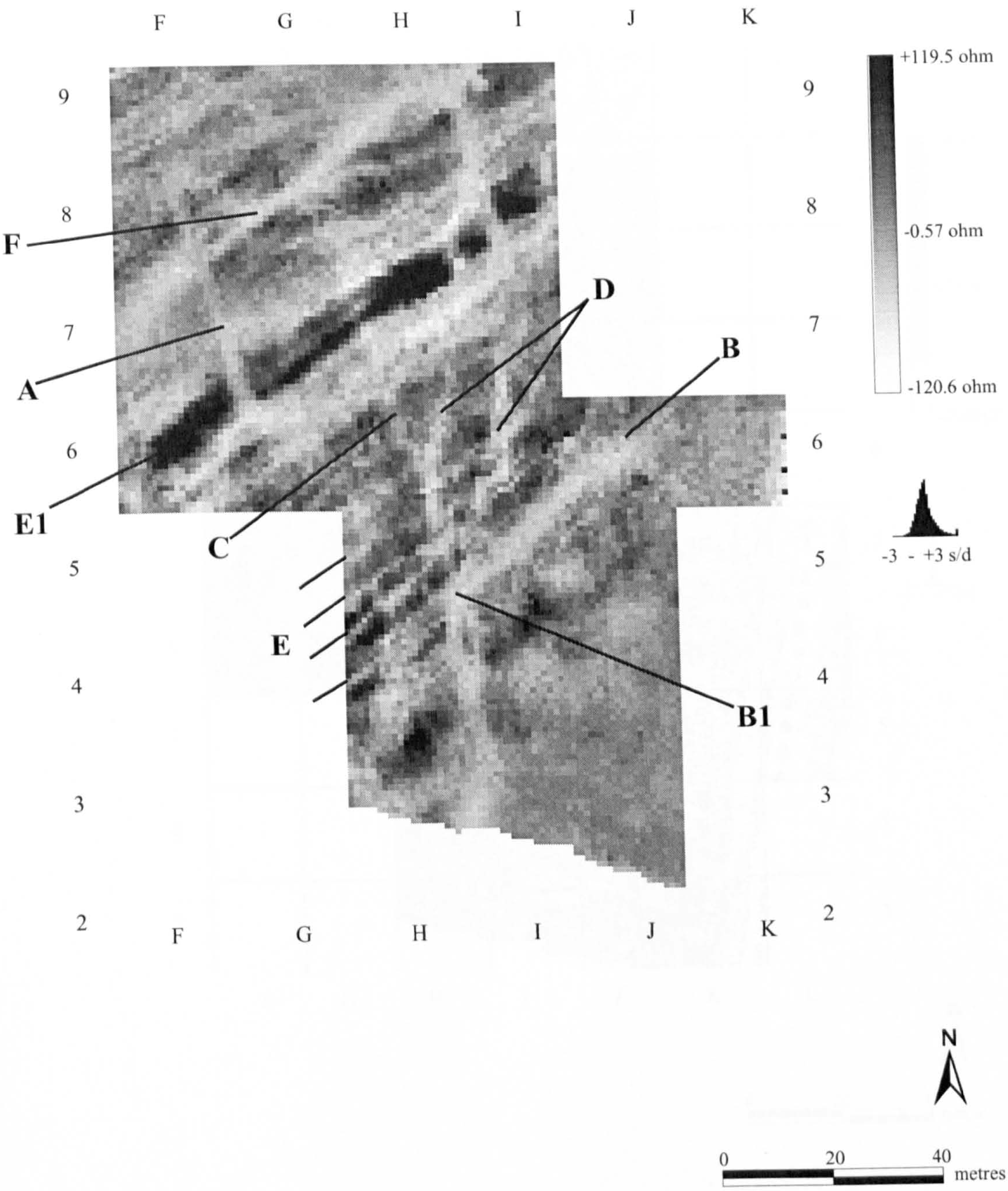


Figure 69: Annotated processed plot of RM15 resistivity survey, Ludgate Field, Mount Folly.

Figure 70: Raw plot of primary FM36 survey in Ludgate Field, Mount Folly.

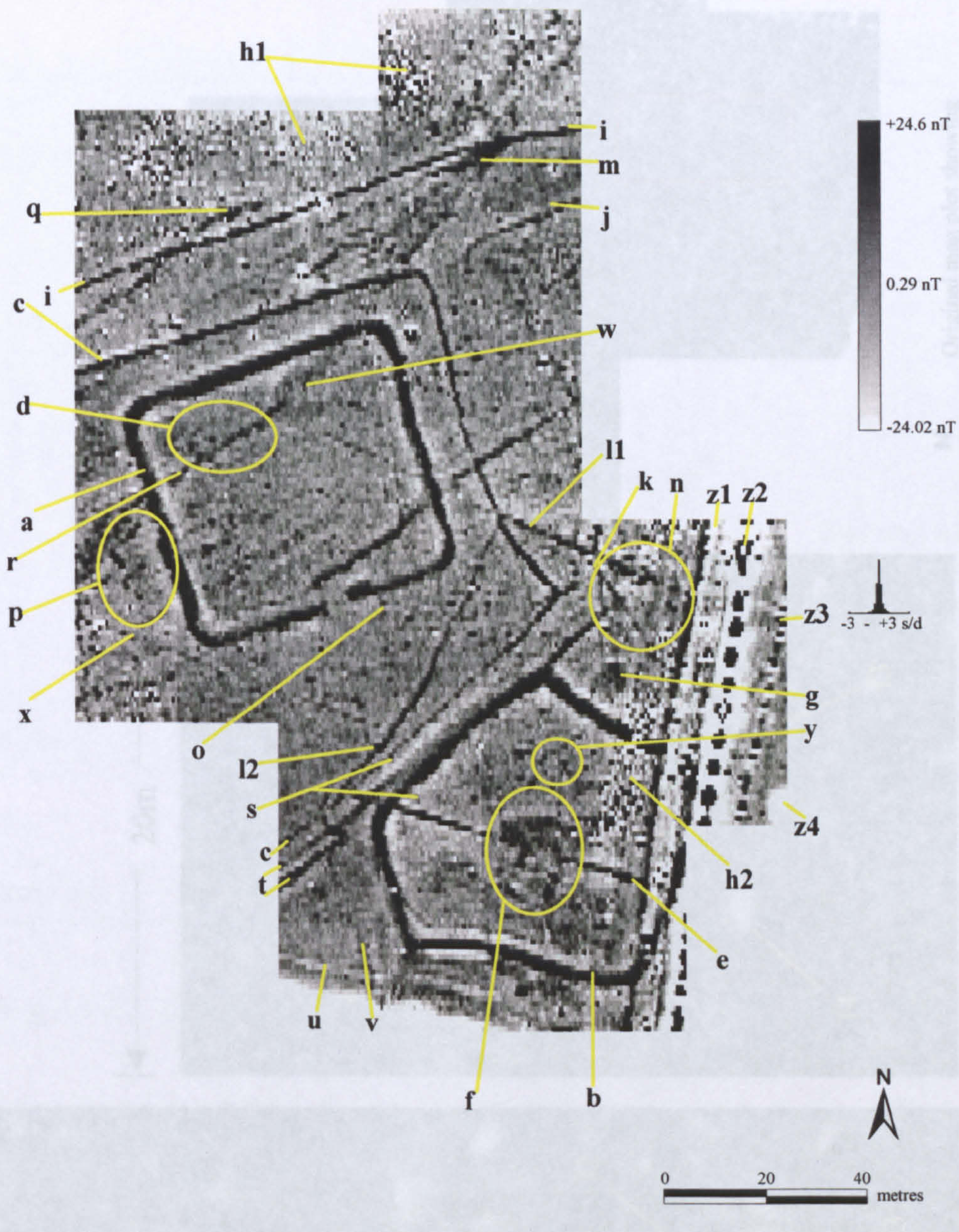


Figure 71: Annotated processed plot of primary FM36 survey in Ludgate Field, Mount Folly.

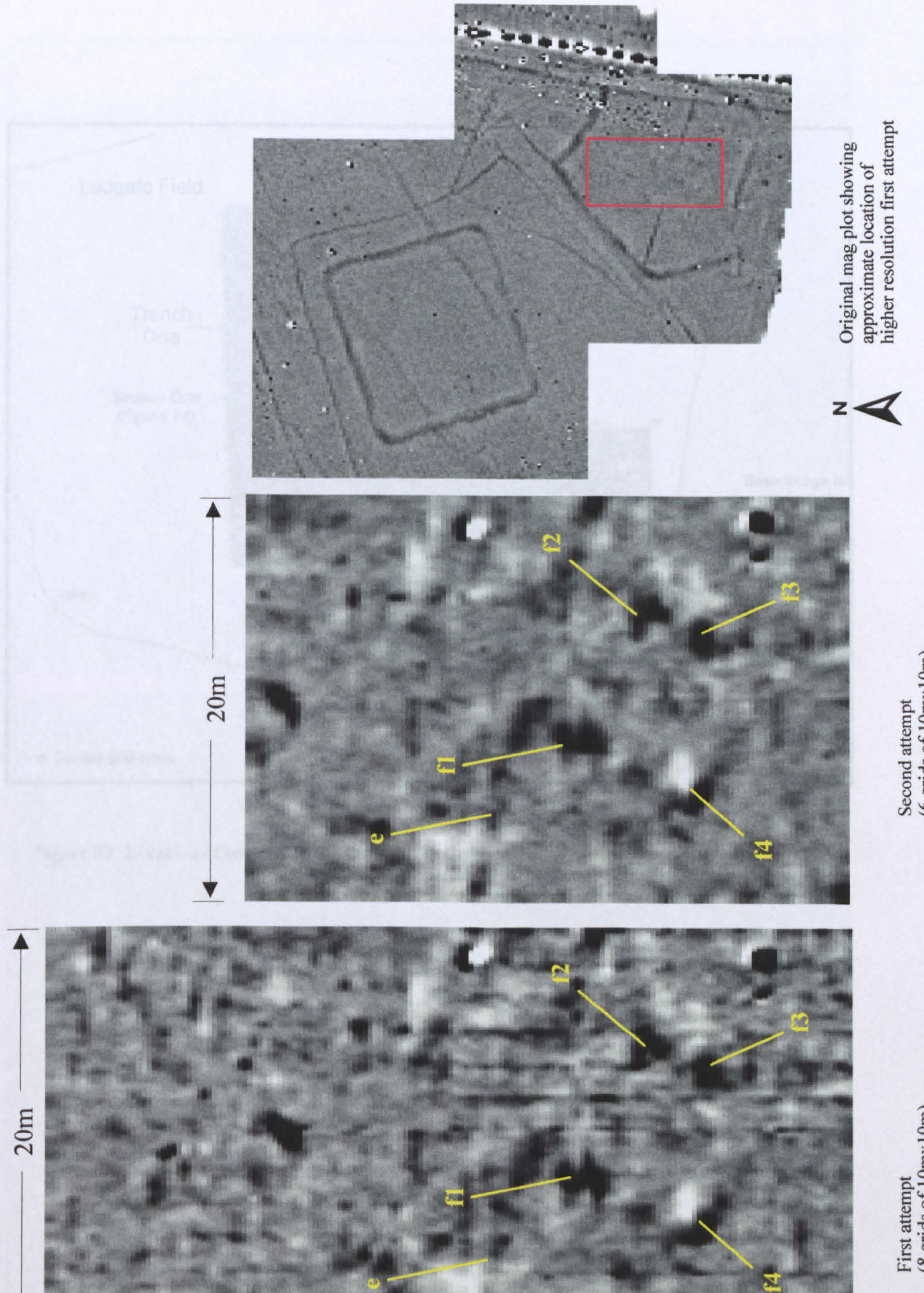


Figure 72: Further FM36 magnetometry survey of part of Ludgate Field.
Reading interval 0.25m; traverse interval 0.5m

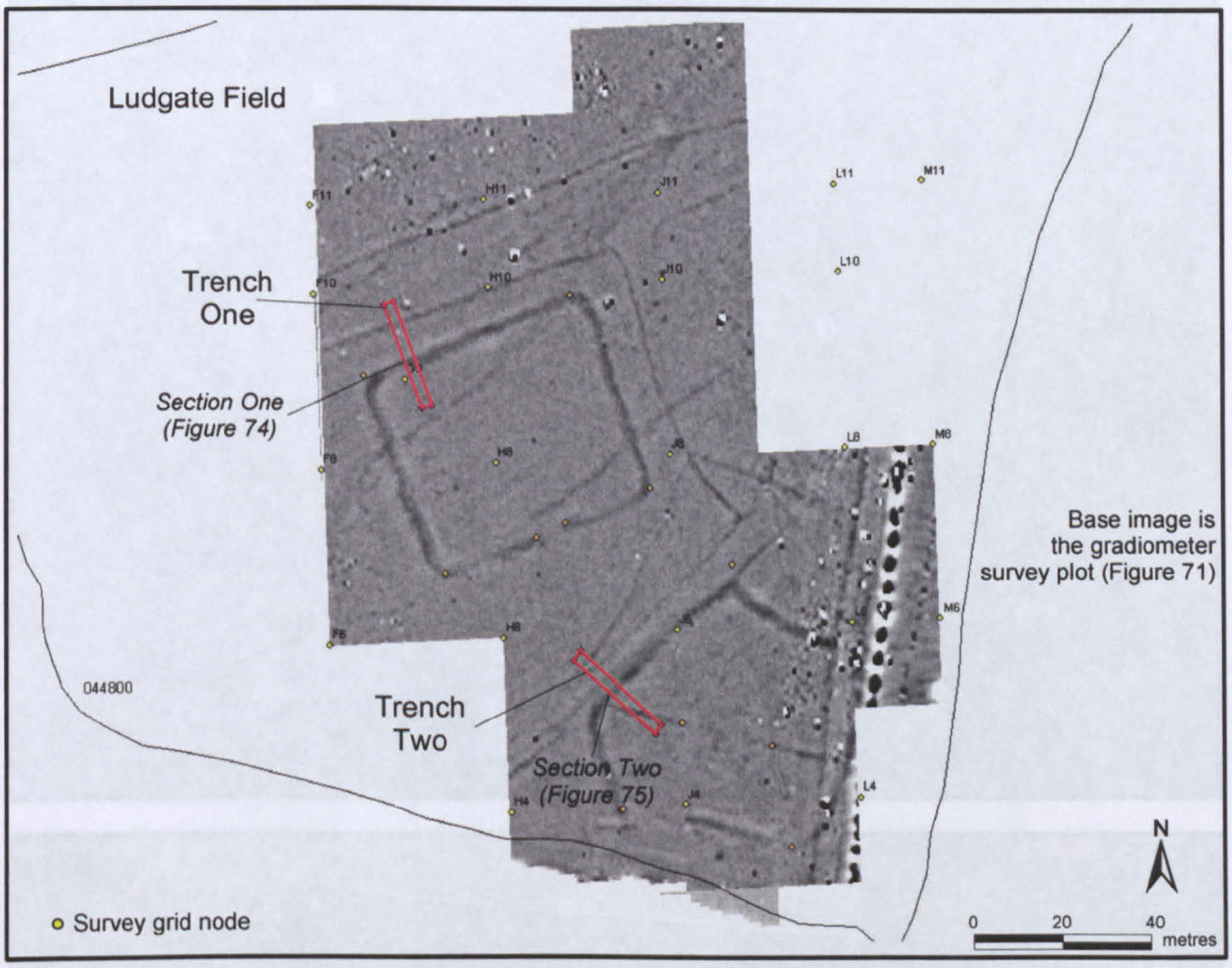


Figure 73: Location of two trenches excavated in Ludgate Field, Mount Folly, September 2003.

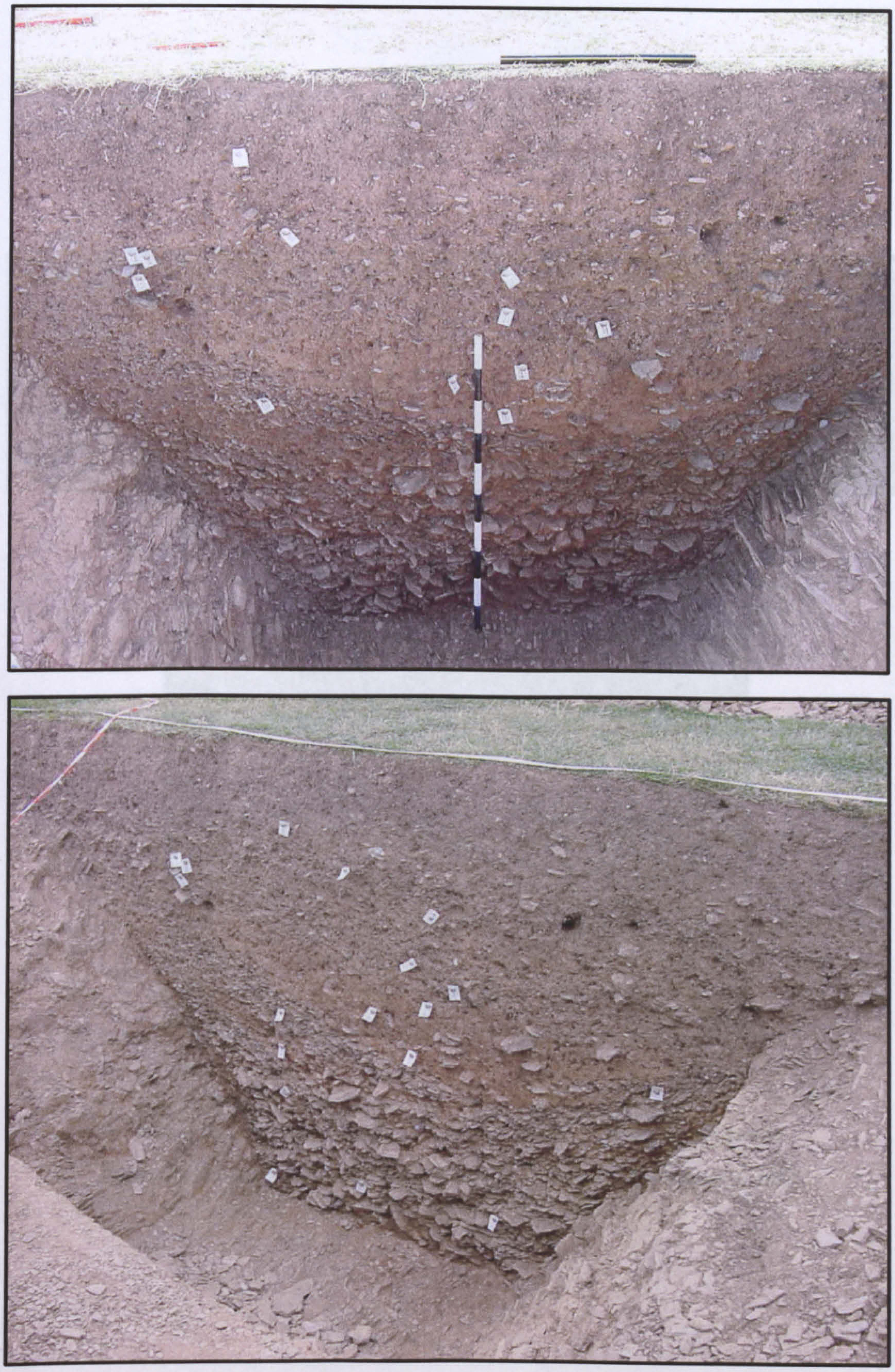
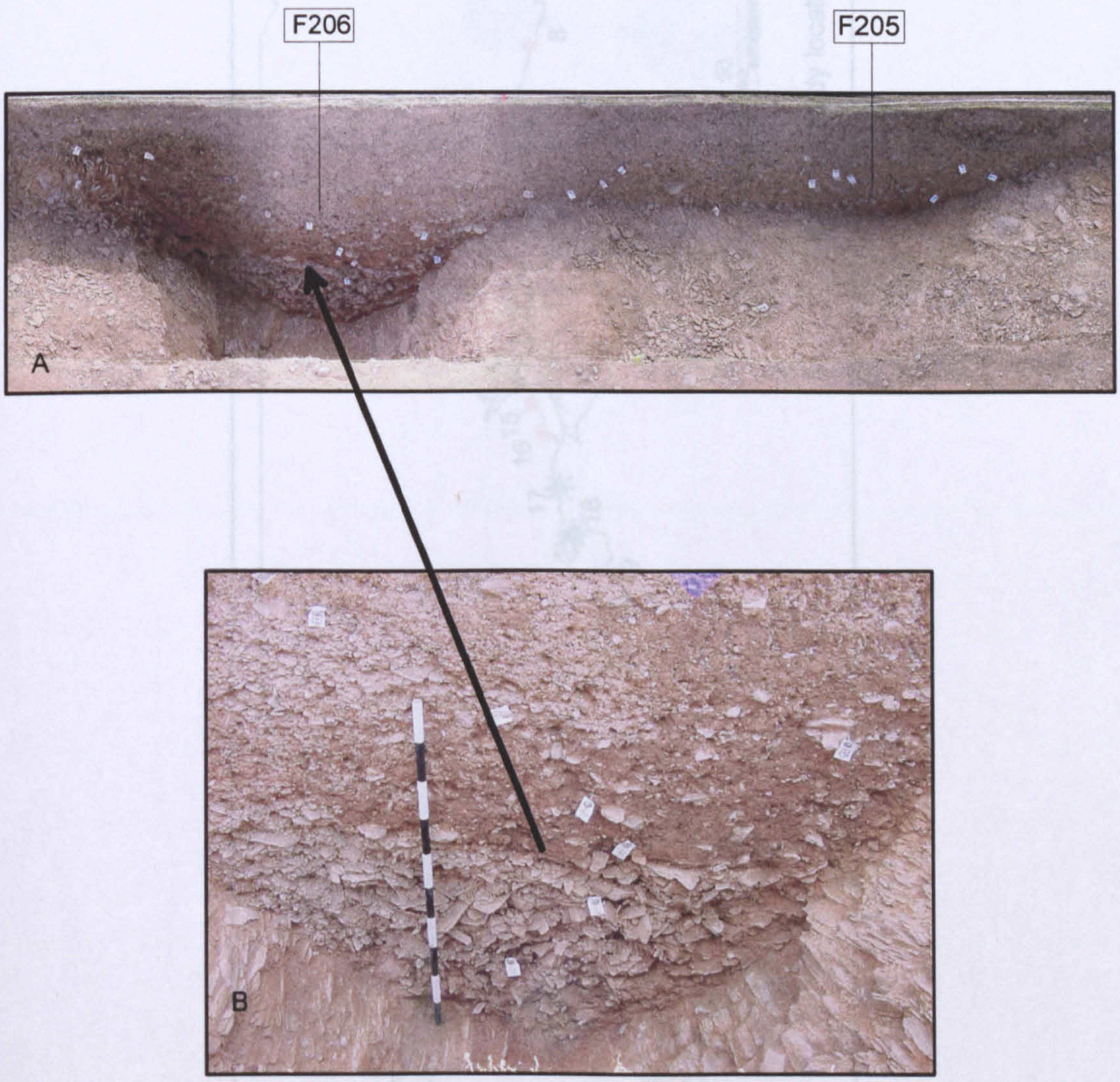


Figure 74: North-east facing section of the main enclosure ditch in Trench One, Mount Folly, September 2003.



A - Main enclosure ditch (F206) and intersecting linear feature (F205)
B - Base of the main enclosure ditch cutting into shillet - note 'U'- shaped profile.

Figure 75: North-east facing section of Trench Two, Mount Folly, September 2003.

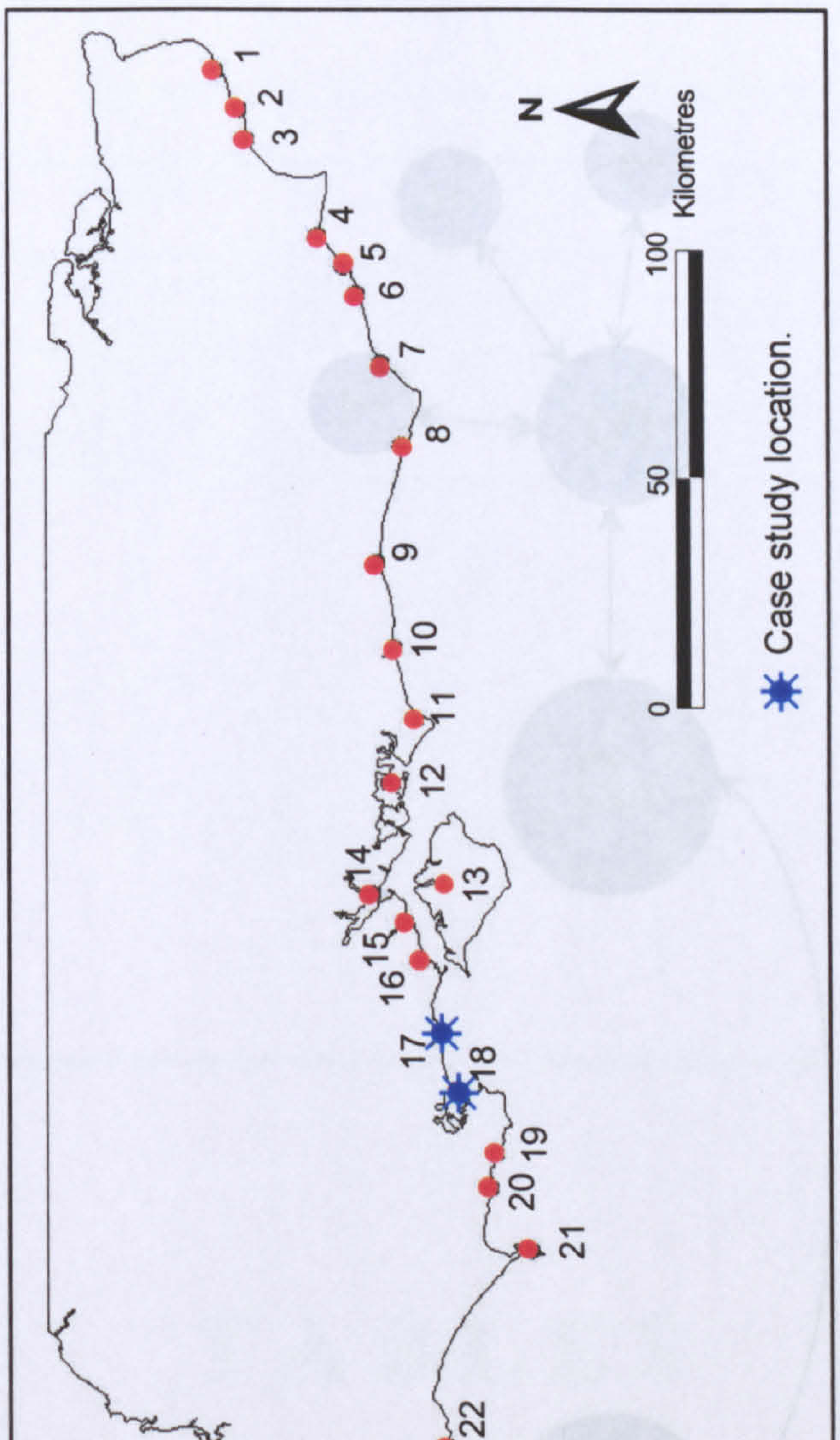


Figure 76: Forty locations identified as Iron Age coastal nodes on the south coast of Britain. (Numbers refer to site numbers in the text - see Table 6)

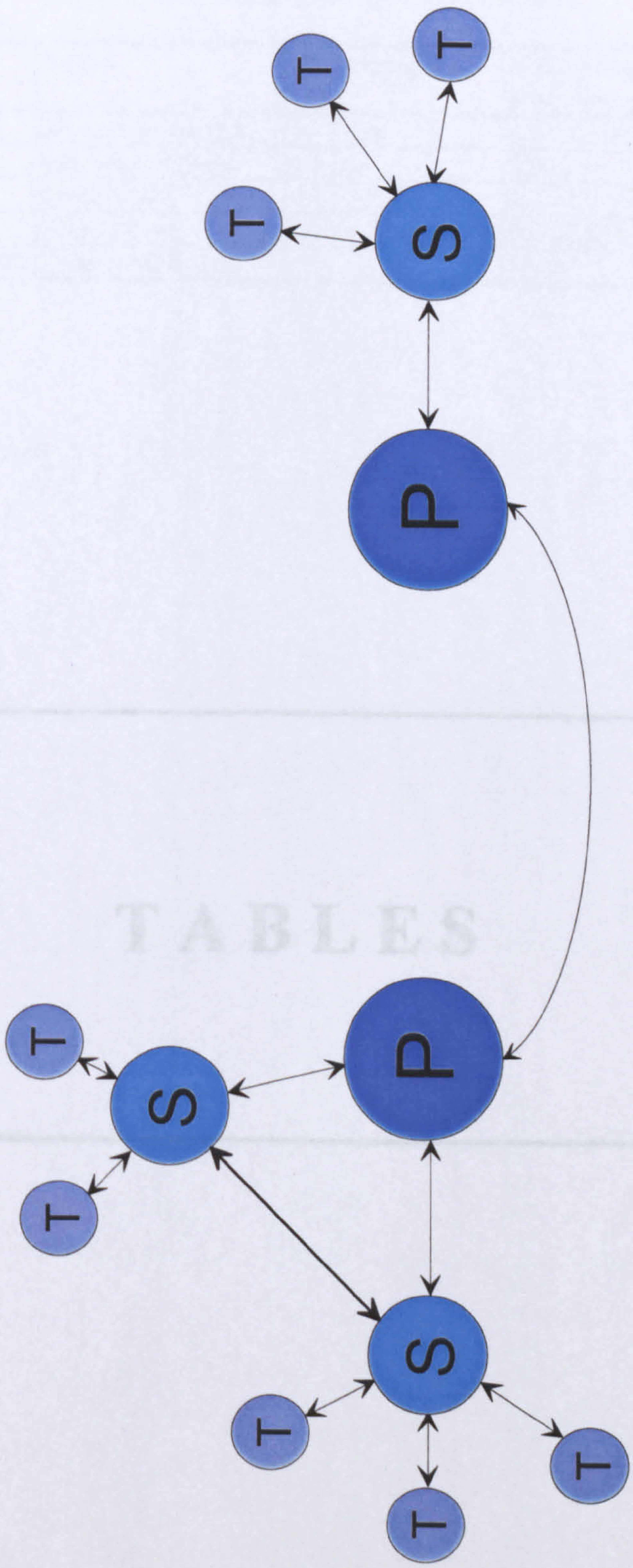


Figure 77: Reciprocal dendritic interaction routes of Primary (P), Secondary (S) and Tertiary (T) nodes. Note interaction between Primary nodes.

TABLES

Table 1 Comparison of regional RSL calculations.

Author	**Region**	**RSL change pa**	**RSL change for past 2000 years**	**calculation based on**
Devoy (1990)	North-west Europe	1 - 3 mm	0.5 - 1.0 m	sea-level rise
Shennan (1989)	South-east Britain	1.5 mm	3.0 m	land fall
Tooley (1990)	South Kent	0.7 - 0.9 mm	1.4 - 1.8 m	land fall
Tooley (1990)	South Devon	0.1 - 1.4 mm	0.2 - 2.8 m	land fall
Long and Roberts (1997)	South-west Britain	-	1.3 m	sea-level rise

Table 2 Prehistoric log boats from British waters.

Site	Boat date	Dimensions (lxbxh)	Notes
Appleby	1625 - 1205 BC cal	>7.5m x 1.35m	Found near the Humber. Oak, with stern board.
Short Ferry	1255 - 805 BC cal	>7.3m x 0.85m	Found Witham, Lincolnshire. Oak, with stern board.
Brigg I	1245 - 800 BC cal	14.78m x 1.37m x 1.0m	Oak. Good cargo carrying capacity and a potentially fast vessel.
Llandorse Lake	LBA/IA	7.2m x 635mm x 300-380mm	Fox (1926). Log hollowed out by axe, possibly palstave, not an adze. No sign of use of fire. Found *c*.460 m from an island in the lake that wholly/partially artificial. Inland water use. Rounded bow and stern. No stern board as Poole or Hasholme boats.
Peterborough	875 - 530 BC cal	>9.8m x 0.78m	Found at The Wash. Oak, with stern board.
Shapwick	2305+/-120bp (Q-357) (795 - 80 BC cal)	>6.0m x 0.75m	Oak
Ellesmere	465 - 200 BC cal	3.35m x 0.73m x 0.44m	From the Severn region. Oak. Capacity 1 person and 277 kg cargo.
Fiskerton	*c*. 457-317 BC (dendro date from adjacent structure)	Boat 1 *c* 7m long	Two boats found in 2001 on the river Witham at a site of ritual deposition in water. Associated with a timber causeway/jetty structure (Field and Parker Pearson 2003).
Clifton I	450 - 195 BC cal	8.55m x 0.76m x 0.36m	Oak, with stern board. Capacity two people and 361 kg cargo.
Clifton II	415 - 95 BC cal	9.25m x 0.76m x 0.38m	Oak, with stern board. Capacity two people and 533 kg cargo.
Poole Harbour	2245+/-50bp (Q821) (410 - 190 BC cal)	10.06m x 1.25m x 0.38m	Peers (1965). Oak. Found *c*. 75 m east of Brownsea Island in current main ship channel at *c*. -8.0 mOD. Has seperate stern board inserted in groove, secured with animal hide caulking from which RCD determined. Adze marks visible. Use in harbour, rivers, and some coastal work. Capacity four people and 898 kg cargo. High speed potential. Contemporary with the South Deep jetties (see Markey et al. 2002; Chapter Seven herein).
Holme Pierreport 1	2180+/-110bp (Birm-132) (410 - 135 BC cal)	>6.5m x 0.86m	Oak. The boats was found on top of a cartwheel with 12 spokes (McCormick and Musty 1973). Two other boats were also found but these are undated. Holme Pierrepoint 2 measured >5.3 x 0.82 m. Holme Pierrepoint 3 measured >10 m x 1.28 m. They are both thought to be contemporary with boat I.
Glastonbury I	340 - 30 BC cal	5.4m x 0.69m x 0.42m	Bulleid (1893). Oak. Capacity 1 person and 345 kg cargo. Wooden wheel fragments were found close to the boat remains (Bulleid and Gray 1911).
Halsholme	*c*. 300 BC (750 - 390 BC cal) (322 - 277 BC dendro date)	12.78m x 1.40m x 1.25m	Oak. Single piece stern board inserted into groove and punt-shaped bow (McGrail and Millett 1985). Oak. High standard of woodworking - similar technique to Poole Harbour logboat (McGrail 1978, 254-7). Found on R Foulness, operated on R Humber and tributeries. Could have carried five tonnes of cargo and crew of five (Millett and McGrail 1987).
Lock Arthur (Lotus)	2050+/-80bp (SRR-403)	14.1m x 1.5m	Oak

Data from McGrail (1990, 32; 1995a, Table 15.1) and other sources as indicated.

Table 3 Prehistoric plank boats from UK waters.

Site	Boat date	Notes
Kilnsea	*c*.1870 - 1670 cal BC	Van der Noort et al. (1999). Found Kilnsea beach, Yorkshire but associated with estuarine use in the Bronze Age. Oak. Single plank found with remains of a cleat. To date this is Britain's oldest recorded boat.
Caldicot	*c*.1594 - 1454 cal BC	Parry and McGrail (1991a; 1991b). Associated with hard; cleats similar to Ferriby and Brigg.
Dover	*c*.1600 BC	Parfitt and Fenwick (1993); Clark (1997). Found 1992 on river Dour. c.12 m long. Oak planks stitched with yew withies and caulked with moss. 'Unique' swallow-shaped end. Possibly sea-going; could be beached. Contemporary with Ferriby boats.
Ferriby 1	*c*.1390 - 1130 cal BC	Wright (1990). Humber Estuary. Capacity 20 crew, 30 passengers, and 2.9 tonnes cargo.
Ferriby 2	*c*.1300 cal BC	Wright (1990). Humber Estuary. Designed for speed.
Ferriby 3	*c*.1310 - 1060 cal BC	Wright (1990). Humber Estuary.
Goldcliff	After 1017 BC	Bell et al. (2000). Oak. Sewn planks. Found in Severn Estuary. Parallel Ferriby, Brigg, Caldicot, and Dover vessels.
Brigg	*c*.800 cal BC	McGrail (1981; 1985). Found on river Ancholme in 1888. Sewn planks. Flat-bottomed "ferry" over 12 m long. Stable and buoyant. Possibly capable of coasting and short open sea voyages (Roberts 1992) but this doubted by McGrail (1994). Certainly capable of being poled or paddled on tidal river. Capacity from 40 sheep and 10 people to 30 cattle and 20 people (McGrail 1994, 288).

Data from Van der Noort et al. (1999, Table 1); McGrail (1993, 204; 1995a, Table 15.3); and others as indicated.

Table 4 Early sailing vessels from UK waters.

Site	Boat date	Notes
Blackfriars I*	second century AD	17 m long. Flat bottomed vessel with no deep keel. Suited to tidal coastal waters and possibly open sea voyages. Could be beached or used alongside quay/jetty. Marsden (1967; 1981; 1990).
County Hall, London**	third century AD	22 m long; 5 m wide (Marsden 1967). Round hull with slightly protruding keel. Sea-going capability. Deep water quay required. Form more suited to the tideless Mediterranean. Marsden (1974; 1981).
St Peter Port*	third century AD	25 m long x 6 m wide x 3 m high. Oak. Flat-bottomed boat with three-part keel and single sail mounted forward of amidships. The same tradition as Blackfriars I and as the Venetic craft described by Caesar (*de Bello Gallico* III.13). Capable of open sea voyages. Rule and Monaghan (1993).
Barland's Farm*	third-fourth century AD	*c*.9.7 m x 2.6 m x 0.7 m surviving. Original dimensions probably *c*.11.4 m x 3.2 m x 0.8 m. Found within the Severn Estuary. Associated timber and stone structure interpreted as jetty or causeway. Oak planks fastened with hooked iron nails. Nayling et al. (1994).

* Romano-Celtic vessels (flat bottomed)
** Mediterranean style vessels (round bottomed)

Table 5 Matrix of physical traits at each identified coastal node site.

Ref	Site	Proximity to river routes	Promontory/ headland location	Identifiable land mark	Sheltered from westerlies	Safe haven with good anchorages	Beaching points/ facilities	Evidence for storage	Evidence of settlement/ accommodation	Island	River/ estuary location	Island	High ground element	Iron Age manufacturing evidence	Iron Age artefacts (xx if imports)	Primary (1), Secondary (2), Tertiary (3)*
1	Dover	x		x	x	x	x	x	x		x		x			1
2	Folkestone	x			x	x	x						x		x	3
3	Hythe	?			x	?	?				x				xx	
4	Rye Bay	x			x	?	?			?						
5	Fairlight		?	x	x	?	x								x	3
6	Hastings		x	x	x		x	x	?			x	x		xx	
7	Pevensey		x	x	x		x						x		xx	
8	Seaford Bay	x	x	x	x	x	x	?	?		x		x		xx	2
9	Shoreham	x			x	x	x		x		x		x			
10	Arun Valley	x			x	x	x				x		x			2
11	Selsey and Pagham	x	x	x	x	x	x	?	x	x				x	xx	
12	Hayling Island			x	x	x	x		?	x		x		?	x	
13	Isle of Wight	x	x	x	x	x	x	?	?	x	x	?	x	?	xx	2
14	Hamble Common	x	x		x	x	x		x		x	x				2
15	Beaulieu River	x	x	x	x		x		?		x	x	x		xx	3
16	Lymington	x			x	x	x				x		x			
17	Hengistbury Head	x	x	x	x	x	x	x	x	?	x		x	x	xx	1
18	Poole Harbour	x			x	x	x	x	x	x	x	x	x	x	xx	1/2
19	Kimmeridge				x	x								x		3
20	Bindon Hill		x	x	x	x	x	?	x				x		x	
21	Portland	?	x	x	x	x		?	x	x	x		x		x	1/2
22	Seaton	x			x	x	x		?		x	x	x		xx	

Table 5 Matrix of physical traits at each identified coastal node site.

Ref	Site	Proximity to river routes	Promontory/ headland location	Identifiable land mark	Sheltered from westerlies	Safe haven with good anchorages	Beaching points/ facilities	Evidence for storage	Evidence of settlement/ accommodation	Island	River/ estuary location	Island	High ground element	Iron Age manufacturing evidence	Iron Age artefacts (xx if imports)	Primary (1), Secondary (2), Tertiary (3)*
23	Sidmouth	x			x	x	x		?		x	x	x		x	
24	Otterton	x	x		x	x	x				x	?				
25	Topsham	x	x	x	x	x	x	?	?		x	?	?		xx	2
26	Teignmouth	x			x	x	x				x	x	x		x	
27	Tor Bay		x	x	x	x	x			?						
28	Dartmouth	x	x		x	x	x				x		x			
29	Kingsbridge Estuary	x			x	x	x				x	?				
30	Bigbury Bay	x	x	x	x	x	x	?	?	x	x	x	x	?	x	
31	Wembury	x		x		x	x			x	x					3
32	Mount Batten	x	x	x	x	x	x	x	x	x	x		x	x	xx	1
33	Tamar Estuary	x			x	x	x	?	?		x	?	x			2
34	Looe Bay	x		x	x	x	x			x	x		x			
35	Fowey	x	x	x	x	x	x	?	?		x	x	x		x	
36	Mevagissey Bay	x		x	x	x	x				x		x			
37	Falmouth	x	x		x	x	x	?	?		x	x	x		x	
38	Helford Estuary	x		x	x	x	x	x	x		x	x	x	x	x	2
39	Mullion			x		x	x			x			x			3
40	St Michael's Mount		x	x	x	x	x	?		x		?	x		x	1/2

Key:
x confirmed trait/attribute
? unconfirmed trait/attribute

* evidence for scale of operation not available for all sites.

Table 6 List of 40 sites identified as possible Iron Age coastal nodes on the English Channel coast.

Ref	Site	Easting	Northing	County	Level of proof of node status	Possible complex of sites	assoc HGE
1	Dover	632000	141000	Kent	probable	y	y
2	Folkestone	623210	135950	Kent	potential	y	n
3	Hythe	616500	134150	Kent	potential	n	n
4	Rye Bay	595050	117950	Sussex	potential	y	n
5	Fairlight	588200	112100	Sussex	potential	n	n
6	Hastings	582050	109450	Sussex	probable	y	y
7	Pevensey	565900	104000	Sussex	potential	y	n
8	Seaford Bay	548000	99000	Sussex	probable	y	y
9	Shoreham	521600	104850	Sussex	potential	y	y
10	Arun Valley	502800	101000	Sussex	potential	y	n
11	Selsey and Pagham	487000	96500	Sussex	probable	y	n
12	Hayling Island	472500	101500	Hampshire	potential	n	y
13	Isle of Wight	450000	87000	Hampshire	probable	y	y
14	Hamble Common	448000	106250	Hampshire	potential	y	y
15	Beaulieu River	441900	98750	Hampshire	potential	y	y
16	Lymington	433000	95500	Hampshire	potential	n	y
17	Hengistbury Head	417250	90880	Dorset	definite	y	y
18	Poole Harbour	403700	86800	Dorset	probable	y	y
19	Kimmeridge	390600	79000	Dorset	potential	n	n
20	Bindon Hill	382900	80300	Dorset	probable	n	y
21	Portland	369000	71000	Dorset	probable	y	y
22	Seaton	325650	89820	Devon	probable	y	y
23	Sidmouth	312900	87400	Devon	potential	y	y
24	Otterton	307650	81950	Devon	potential	n	y
25	Topsham	296400	88200	Devon	probable	y	y
26	Teignmouth	294000	72230	Devon	potential	n	n
27	Tor Bay	289600	60240	Devon	potential	y	y
28	Dartmouth	287900	51300	Devon	potential	y	y
29	Kingsbridge Estuary	274100	39200	Devon	potential	y	y
30	Bigbury Bay	265600	43900	Devon	potential	y	y
31	Wembury Bay	250100	48250	Devon	potential	y	n
32	Mount Batten	248650	53250	Devon	definite	n	y
33	Tamar Estuary	244000	56000	Cornwall	probable	y	n
34	Looe Bay	225700	53300	Cornwall	potential	y	y
35	Fowey	212300	51300	Cornwall	probable	y	y
36	Mevagissey Bay	201700	44800	Cornwall	potential	y	y
37	Falmouth	180600	33500	Cornwall	probable	y	y
38	Helford Estuary	178000	26500	Cornwall	probable	y	y
39	Mullion	166100	17600	Cornwall	potential	y	y
40	St Michael's Mount	151500	29800	Cornwall	probable	y	y

	No	%
Potential	23	57.5
Probable	15	37.5
Definite	2	5.0

Table 7 High ground enclosures (hillforts) within five kilometres of the south coast.

Ref	Name	multi or uni	size	county	assoc node?	coast/ inland	Notes
1	Dover Castle	m	2	Ke	y	coast	at Dover node site
2	Hastings Castle	m	2	Su	y	coast	IA promontory fort; site reused by later Norman castle. Hastings node site.
3	Belle Tout	u	3	Su	n	coast	*c.* 4 km from Cuckmere Haven
4	Seaford Head	u	2	Su	y	coast	much eroded, like Flowers Barrow. Above rocky beach. Seaford node site.
5	Castle Hill	u	2	Su	y	coast	at Newhaven (Seaford node site)
9	Hollingbury Camp	u	2	Su	n	in	
12	Thundersbarrow Hill	u	1	Su	y	in	near river Adur; settlement and field system overlooking Shoreham and river.
15	Highdown	u	1	Su	n	in	end of Adur trib. Enc >1ha; 4x size of next largest Su enclosure.
19	Tourner Bury	u	2	Ha	y	coast	on Hayling Island.
20	Hamble Common Camp	u	3	Ha	y	coast	Hamble Common node site.
21	Hickley Farm	u	1	Ha	n	in	between rivers Hamble and Itchen
22	Lower Exbury	u	2	Ha	y	coast	at the end of Beaulieu River.
23	Chilworth Ring	u	2	Ha	n	in	
24	Castle Hill	u	1	Ha	n	in	
25	Nursling	u	1	Ha	n	in	
27	The Walls	u	3	Ha	n	in	on River Test
29	Tatchbury	m	2	Ha	n	in	
30	Ampress	m	2	Ha	y	in	on Lymington River
31	Buckland Rings	m	2	Ha	y	in	on Lymington River
33	Hengistbury Head	m	3	Do	y	coast	on Christchurch Harbour
34	St Catherine's Hill	u	2	Ha	y	in	overlooks Christchurch Harbour and river Avon
36	Bulbury	u	2	Do	y	in	overlooks back (north) of Poole Harbour
37	Flowers Barrow	m	2	Do	n	coast	*c.*5 km W of Kimmeridge, but out of sight.
39	Bindon Hill	u	3	Do	y	coast	Above Lulworth Cove.
41	Chalbury	u	2	Do	y	in	5 km NW of Weymouth and Portland
43	Maiden Castle	m	3	Do	y	in	near Frome tributary; also N of Weymouth/Portland: Durotrigian 'centre'
44	Abbotsbury	m	2	Do	n	in	overlooks long stretch of coast
45	Chilcombe Hill	u	3	Do	n	in	on tributary of river Brit
46	Shipton Hill	u	1	Do	n	in	overlooks tributary of river Brit
48	Coney's Castle	u	2	Do	n	in	end of Char tributary
49	Musbury Castle	m	2	De	y	in	overlooks Axe; 5 km NE of Seaton
50	Hawkesdown Camp	u	2	De	y	in	on Axe, near coast, 1.5 km from Seaton coast
51	Seaton Down	m	2	De	y	in	on Axe trib, 2.5 km NW of Seaton.
52	Berry Cliff Camp	u	2	De	y	coast	5 km E of Sidmouth
53	Blackbury Castle	u	2	De	n	in	on Axe tributary, behind Berry Cliff Camp
54	Sidbury Castle	u	2	De	y	in	on Sid, 4 km N of Sidmouth
55	High Peak	u	2	De	y	coast	3 km SW of Sidmouth and 4.75 km NE of Otterton
56	Woodbury Castle	m	2	De	y	in	end of tributaries of Exe and Sid; *c.* 6 km E of Topsham
57	Berry Head	u	2	De	y	coast	south point of Tor Bay
59	Noss Camp	m	2	De	y	coast	above River Dart, Dartmouth
60	Milber Down	m	2	De	n	in	on river Teign

Table 7 High ground enclosures (hillforts) within five kilometres of the south coast.

Ref	Name	multi or uni	size	county	assoc node?	coast/ inland	Notes
62	Berry's Wood Camp	u	2	De	n	in	on a Teign tributary
63	Capton Camp	u	1	De	y	in	overlooks River Dart tributary; 4.5 km W of Noss Camp across the river Dart
64	Woodbury Camp	u	2	De	y	in	on river, near coast; 2 km S of Capton Camp
65	Widdicombe Camp	u	1	De	n	in	near coast, at end of river leading to Kingsbridge Estuary
66	Slapton Castle	u	2	De	n	in	on river, near coast
67	Halwell	u	1	De	n	in	end of tributaries to Avon, Kingsbridge, and Dart
70	Burleigh Dolts Camp	m	1	De	y	in	4 km W of Kingsbridge Estuary
71	Bolt Tail	u	3	De	y	coast	on S point of Bigbury Bay
72	Yarrowbury	u	2	De	y	in	near Bigbury Bay and Mount Folly site
73	Holbury Camp	u	2	De	y	in	on Erme Estuary, near Mothecombe at N of Bigbury Bay
74	Coldrings Camp	m	1	De	n	in	near River Yealm
75	Waste Berry	m	2	De	n	in	on tributary of River Yealm
76	Boringdon Camp	u	2	De	n	in	between river Plym and tributary, NE of Mount Batten
78	Castle Borough	u	1	De	y	coast	3 km SEE of Mount Batten
79	The Wilderness	u	1	De	n	in	on river Tavy
80	Berrator Camp	u	1	De	n	in	on Tavy tributary
81	Rame Head	u	3	Co	y	coast	overlooks entrance to Plymouth Sound: Mount Batten and Tamar ndes
82	Perdredda Camp	u	1	Co	n	in	by stream
86	The Wedding Ring	u	1	Co	y	in	near W Looe river; 2.5 km W of confluence with E Looe River
87	St Nun's Camp	u	1	Co	y	in	3.5 km NW of confluence of W and E Looe rivers; on spur overlooking W Looe River
88	Hall Rings	m	1	Co	n	in	near river
89	Bury Camp	m	1	Co	n	in	between rivers
90	Bake Rings	u	1	Co	n	in	near river leading to Fowey
91	Castle Dore	m	1	Co	y	in	between rivers; 3.5 km NW of Fowey
92	Trenuthon Camp	m	1	Co	y	in	near river Fowey; 0.5 km S of Castle Dore on same hilltop
93	Prideaux Camp	m	1	Co	n	in	between rivers
94	Black Head	m	2	Co	y	coast	south St Austell Bay; N point of Mevagissey Bay
95	Castle Gotha	u	1	Co	n	coast	near St Austell Bay; 0.5 km from coast
96	Castle Hill	u	1	Co	y	in	1.5 km up Portmellon Creek from Mevagissey Bay
97	Dodman Point	m	3	Co	n	coast	promontory fort
98	Pencoose Castle	u	1	Co	n	in	on river
100	Castlezens Camp	u	1	Co	n	in	on river
102	Carne Castle	m	1	Co	n	coast	on stream to Carne Beach
103	Dingerein Castle	m	1	Co	n	coast	by river, near coast
104	Carwarthen	u	1	Co	y	coast	on Fal Estuary; 1 km E of Carrick Roads
105	Round Wood Camp	m	1	Co	y	coast	on Fal Estuary, on promontory where two tributeries meet river Fal
106	Bishop's Wood Camp	u	2	Co	n	in	on river to Fal Estuary

Table 7 High ground enclosures (hillforts) within five kilometres of the south coast.

Ref	Name	multi or uni	size	county	assoc node?	coast/ inland	Notes
107	Tregullas Round	u	1	Co	n	in	near river to Fal Estuary
108	Governs Camp	u	1	Co	n	in	near river to Fal Estuary
109	Carrine Camp	u	1	Co	n	in	on river to Fal Estuary
110	Halwyn Camp	u	1	Co	n	in	very near Helford and tributaries
111	Maiden Green Camp	u	1	Co	n	in	on river to Fal Estuary
112	Dennis Head	u	1	Co	y	coast	at mouth of Helford Estuary
113	Chynhalls Point	u	2	Co	n	coast	south Lizard
115	Carlidnack Camp	u	1	Co	y	in	very near Helford and tribs; 2.5 km N of Helford mouth
117	Lankidden	u	2	Co	n	coast	south Lizard: Promontory Fort at Lankidden Cove
118	Trevaids Rounds	u	1	Co	y	in	very near Helford and tributaries; 2.5 km N of Helford
119	Trelan Plantation South	u	1	Co	n	in	south Lizard
120	Trelan Plantation West	u	1	Co	n	in	south Lizard
121	Tremayne Camp	u	3	Co	y	coast	Helford; 0.25 km S of Helford
122	Caervallack	m	1	Co	y	in	very near Helford and tributaries; 1.25 km S of Helford
123	Gearhill Camp	u	2	Co	y	coast	1km S of Helford: big settlement
124	Haliggye	u	1	Co	n	in	very near Helford and tributaries
125	Gweek Camp	u	1	Co	n	in	very near Helford and tributaries
126	Crasken Round	u	1	Co	n	in	near river near coast
127	The Towans	u	2	Co	y	coast	south Lizard at Mullion
128	Prospidnick Hill	m	2	Co	n	in	near river to south Lizard
129	Castle Wary	u	1	Co	n	in	near River Cober, near coast
130	Sithney Round	u	1	Co	n	in	near river near coast
131	St Elvan Round	u	1	Co	n	in	near river near coast
132	Burncoose Camp	u	1	Co	y	in	near coast
133	Castle Pencaire East	u	1	Co	n	in	
134	Castle Pencaire North-east	u	1	Co	n	in	
135	Castle Pencaire	m	1	Co	n	in	
136	North Treveneague	u	1	Co	y	in	*c*.4 km NE of St Michael's Mount
137	Lescudjack Castle	u	1	Co	y	coast	Mounts Bay
138	Lesingey Round	u	1	Co	y	in	on river to Mounts Bay; 2km E of Mounts Bay
139	Higher Faugau	m	1	Co	y	in	on river; E of Mounts Bay
140	Castallack	u	1	Co	y	in	E of Mounts Bay
141	Kerris Roundago	u	1	Co	y	in	
142	Boleigh	m	1	Co	n	in	on river
143	Treryn Dinas	m	2	Co	n	coast	near continental import (further up river)

u univallate
m multivallate

1 <1.2ha
2 1.2-6 ha
3 >6ha

Table 8 Breakdown of identified node sites by sector and by county.

	South-east			South central			South-west			
	number of sites	% of coastal total	% within sector	number of sites	% of coastal total	% within sector	number of sites	% of coastal total	% within sector	Total number
Total	11	27.50	100.00	10	25.00	100.00	19	47.50	100.00	40
Definite	0	0.00	0.00	1	50.00	10.00	1	50.00	5.26	2
Probable	4	26.67	36.36	4	26.67	40.00	7	46.67	36.84	15
Potential	7	30.43	63.64	5	21.74	50.00	11	47.83	57.89	23

	No	% of total
Cornwall	8	20.0
Devon	11	27.5
Dorset	5	12.5
Hampshire	5	12.5
Sussex	8	20.0
Kent	3	7.5
Total	40	

Table 9 Chronology of use of Poole Harbour elements and Hengistbury Head (Adapted from various sources).

Date	Furzey Island	Green Island	Ower	HH	General
800 BC 700 600 500	**Phase1** BA and agricultural settlement clearances; east of island favoured			**800-400BC** **LBA/EIA** extensive settlement on flat land and on top of Warren Hill.Early linear e/w Barnfield.	
400 300 200	**Phase2** Later than 300 BC, probably 2nd cent BC. Revitalised pre-existing agricultural settlement. Clearances; Enc C used for stock. Arable, pastoral, harbour resources. Hand worked shale.	'Green Island Causeway' *c.* 250 BC		**400-100BC MIA** Reduced occupation but still circular structures in northern zone. Early Iron Age gravel terrace area abandoned. Smaller scale settlement.	Increase in cross-Channel trade
100	**Phase3A** 100-50 BC Complex use of Furzey Island. Reestablish Enc E - grander. Large scale shale and lathe work.Small scale iron smithing. Salt production. Imports: DrI from Italy; black cordoned wares from France. Increase in status, wealth and surplus.			**LIA1: 100-50BC** **Contact Period** Atlantic seaways. Coarse and finewares from France; DrI amphora. Occupied harbour shore. Hard facility and gravel road Salt production; bronze work glass manufacture. Local ceramics; South-western Decorated Ware; imports.	Large scale international trade contacts. Increase continental trade. Mount Batten, Devon in use.
50 20 0 AD 50	**Phase3B** Big decrease in activity. Hardly any/no imports. Accessibillity problems. No Gallo-Belgic fineware. Abandoned late 1st century BC.		Settlement planned and established *c*.20 BC. Nothing yet from excavation prior to that. Intensive shale working.	**LIA2:50BC-AD50** **Durotrigian Period** Durotrigian pottery and copies N French types: all found associated with mid 1st cent BC Italian and Spanish amphorae. Major site reorganisation: extended up hillslope. Gravel terrace reused (EIA) so fall in sea-level inferred. Bronze, iron, glass working. Arable agriculture.	

Table 10 Iron Age finds from Ower Peninsula.

Finewares and Continental Imports (sherd count) (from Woodward 1987, Table 1, 74-5)							
	Samian	Terra Nigra	Terra Rubra	First century AD Gallic imports	First century AD coarse imports	First century AD native finewares	Amphorae
Phase 1	4	2	5	17	1	3	48
Phase 2	2	10	9	25	-	-	11
Total	6	12	14	42	1	3	59
Site total (all phases)	113	61	60	339	8	17	361
IA material as % of site total	5.31	19.67	23.33	12.39	12.50	17.65	16.34

BB1 vessels (sherd count) (from Woodward 1987, Table 3, 80-1)									
	Cook pots	Jar bowls	Open bowls	Lids	Beakers	Other	Bases	Handles	Body decorated
Phase 1	48	83	44	1	7	1	14	10	9
Phase 1/2	2	10	7	-	1	-	10	-	-
Phase 2	30	50	28	1	9	-	21	3	2
Total	80	143	79	2	17	1	45	13	11
Site total (all phases)	158	263	131	3	21	1			
IA material as % of site total	50.63	54.37	60.31	66.67	80.95	100.00			

Briquetage (from Woodward 1987, Table 5, 94)										
	Rim sherds		Body sherds		Base sherds		Totals			
	number	weight (g)	number	weight (g)	number	weight (g)	number	weight (g)	number %	weight %
Phases 1 and 2	-	-	44	234	2	22	46	256	2.43	1.17
Site total (all phases)	78	3105	1797	17769	16	961	1891	21835	100	100
IA material as % of site total	-	-	2.45	1.32	12.50	2.29	2.43	1.17	2.43	1.17

Table 10 Iron Age finds from Ower Peninsula.

Metalwork (from Woodward 1987, Table 6, 97)					
	Brooches bronze/iron	Bronzes	Iron nails	Iron work	Totals
Phase 1	5	1	1	5	12
Phase 2	1	-	1	4	6
Total	6	1	2	9	18
Site total (all phases)	17	11	59	125	212
IA material as % of site total	35.29	9.09	3.39	7.20	8.49

Miscellaneous objects (from Woodward 1987, Table 7, 100)				
	Spindle whorls and loom weights	Slag and cinder	Glass	Totals
Phase 1	4	5	1	10
Phase 2	1	1	-	2
Total	5	6	1	12
Site total (all phases)	12	6	21	39
IA material as % of site total	41.67	100.00	4.76	30.77

Shale (from Woodward 1987, Figure 9, 112)							
	Unworked, raw material	Worked waste	Prepared for armlet	Cores (type A)	Rough out armlets	Finished products	Total
Phases 1 and 2	7	13	1	3	1	-	25
Site total (all phases)							187
IA material as % of site total							13.37

Table 11 Details of late Iron Age enclosures and ditches in southern Poole Harbour, Dorset, and Mount Folly, Devon.

Table 11a Details of late Iron Age enclosures and ditches at Ower Peninsula, Poole Harbour. (summarised from Cox and Hearne 1991, 73-6)

Feature	Morphological outline	Enclosure dimensions (m)	Ditch width (m)	Surviving ditch depth (m)	Ditch profile	Notes
Enclosure A	sub-rectangular	40 x 32	2.2 - 2.5	0.95 - 1.24	U, with sloping sides	Durotrigian pot in primary fill.
Enclosure B	sub-rectangular	50 x ?30	2.4	0.85	-	Imported finewares in primary fill and postholes within enclosure.
Enclosure C	-	-	0.35	0.9	flat bottomed	Disturbed by RB building activity; much crushed cockleshell and local ceramic in primary fill.
Enclosure D	-	30 x ??	-	-	sloping sides and flat base	Pre-Conquest imported finewares in primary fill.
Enclosure E	-	-	1.1	0.15	insufficient survived	Native coarsewares and amphorae in ditch.
Ditch 495	-	-	3.3	1.2	-	Possibly part of north-south droveway or boundary ditch dividing the network of IA enclosures.
Ditch 335	-	-	3.9	1.2	steeply sloping sides and slightly rounded base	Possibly eastern boundary ditch.

Table 11 Details of late Iron Age enclosures and ditches in southern Poole Harbour, Dorset, and Mount Folly, Devon.

Table 11b Details of late Iron Age enclosures and ditches on Furzey Island, Poole Harbour.
(summarised from Cox 1988)

Feature	Morphological outline	Enclosure dimensions (m)	Ditch width (m)	Surviving ditch depth (m)	Ditch profile	Notes
Enclosure A	rectilinear	40 x ??	>2.50	>1.0	broad, U-shaped	Ditch finds include shale waste and phase 1 pottery (first century BC); possibly an external bank.
Enclosure B	rectilinear		2.50	*c* 0.6		Small amount of IA pot; ceramic phases 1/2 (first century BC); shale waste.
Enclosure C						Animal enclosure of 0.4 ha.
Enclosure D						
Enclosure E		60 x 65	2.00	1.00	U-shaped	Settlement enclosure of 0.23 ha first constructed in MIA and embellished in LIA.

Average enclosure ditch on Furzey Island was *c*.2.0 m wide, *c*.1.0 m deep, with a U-shaped profile.

Table 11c Details of parallel late Iron Age ditches on Green Island, Poole Harbour.
(detail from Wessex Archaeology 2003b, 12)

Feature	Morphological outline	Enclosure dimensions (m)	Ditch width (m)	Surviving ditch depth (m)	Ditch profile	Notes
307, trench 3	-	-	0.70	0.70	steeply sloping sides to narrow base	Late Iron Age pottery found in ditch fill.
309, trench 3	-	-	0.70	0.30	broader and more rounded base than ditch 307	Ditch was overlain by later pit, so original depth of ditch not known.

Table 11 Details of late Iron Age enclosures and ditches in southern Poole Harbour, Dorset, and Mount Folly, Devon.

Table 11d Details of late Iron Age enclosures and ditches at Mount Folly, Devon.
(see Chapter Eight)

Feature	**Morphological outline**	**Enclosure dimensions (m)**	**Ditch width (m)**	**Surviving ditch depth (m)**	**Ditch profile**	**Notes**
Enclosure 1	rectilinear	50 x 50	3.00	1.76	broad, flat base *c*.1.2 m wide with regular, straight sides	Inner ditch find of one sherd of South Devon LIA pottery.
Enclosure 2	irregular	*c.* 50 x 50	2.80	1.56	broad, U-shaped; irregular form in shillet	Six sherds of LIA south-western fabric pottery and one sherd of Early Roman grey Exeter ware (rim).

Table 12 Furzey Island phasing based on a combination of excavation stratigraphy and ceramic evidence.
(adapted from Cox 1988 and Cox and Hearne 1991, 47 and 48)

Phase	Period	Date	Notes
1	LBA - MIA		camp/settlement at east end of island; agricultural practices and clearances.
2	MIA	late 3rd - 2nd century BC	construction of a series of enclosures, including the major Enclosure E; intensive agriculture.
3a	LIA	*c*. 100 - 50 BC	outer bank added to Enclosure E; increased shale working, iron smithing and salt production; international trade evident.
3b	LIA	*c*. 50 BC onwards	decline to only a few imports; abandonment.
4	RB - post med		

Table 13 Comparison of Iron Age pottery ratios from sites in Poole Harbour and Hengistbury Head.

Site	Total pottery count	Imported pottery (continental)	'Native' wares
Hengistbury Head* (Cunliffe 1987)	17968 (all periods)	551 3.1%	17417 96.9%
Furzey Island (Cox 1988)	570 (Iron Age)	6 1.1%	564 98.9%
Green Island (Chapter Seven)	2011 (Iron Age)	48 2.4%	1973 98.1%
Ower Peninsula (Cox and Hearne 1991)	8641 (First centuries BC/AD)	305 3.5%	8336 96.5%
All Poole Harbour sites (combined from above)	11222	359 3.2%	10873 96.8%

* The published report does not provide a basic breakdown of the assemblage so these figures are derived from comments in the report text.

Table 14 Radiocarbon dates mentioned in the text.

RCD reference	Site	Material	RCD determination	Calibrated date	Site reference
HAR-5775	Bantham, Devon	bone	1690+/-80 BP	350+/-95 AD	Griffith
HAR-5776	Bantham, Devon	charcoal	1440+/-90 BP	605+/-90 AD	Griffith
AA-33125	Bantham, Devon	charcoal	2950+/-60 BP		Griffith and Reed 1998
A-10005	Thurlestone, Devon	peat	3370+/-50 BP	1870 - 1840 BC and 1780 - 1520 BC (2 sigma)	Reed and Whitton 1999
A-10006	Thurlestone, Devon	peat	3445+/-50 BP	1900 - 1630 BC (2 sigma)	Reed and Whitton 1999
	Poole log boat	animal hide			McGrail and Switsur 1975
Beta-164887	Green Island "causeway", Poole Harbour	oak	2080+/-60 BP	360 - 290 BC and 240 BC - 60 AD	See Chapter Seven
Beta-164888	Green Island "causeway", Poole Harbour	oak	2260+/-60 BP	410 - 170 BC	See Chapter Seven
Beta-164889	Green Island "causeway", Poole Harbour	oak	2120+/-60 BP	360 - 270 BC and 260 BC - 10 AD	See Chapter Seven
Beta-182644	Green Island "causeway", Poole Harbour	oak	2190+/-60 BP	390 - 90 BC	See Chapter Seven
Beta-182645	Green Island "causeway", Poole Harbour	oak	2310+/-60 BP	800 - 700 BC and 550 - 150 BC	See Chapter Seven
Beta-182646	Green Island "causeway", Poole Harbour	oak	2370+/-70 BP	800 - 350 BC and 300 - 200 BC	See Chapter Seven
Beta-182647	Green Island "causeway", Poole Harbour	oak	2180+/-60 BP	390 - 90 BC and 80 - 60BC	See Chapter Seven
Beta-182648	Green Island "causeway", Poole Harbour	oak	2100+/-70 BP	360 - 270 BC and 260 BC - 60 AD	See Chapter Seven
Beta-182649	Green Island "causeway", Poole Harbour	oak	2150+/-60 BP	380 - 40 BC	See Chapter Seven
Beta-182650	Green Island "causeway", Poole Harbour	oak	2090+/-70 BP	360 - 280 BC and 260 BC - 60 AD	See Chapter Seven

Table 15 Co-ordinates of survey points established for fieldwork in Poole Harbour and at Mount Folly.

PermaPegs in southern Poole Harbour, Dorset

Peg	Easting	Northing	Elevation (mOD)	Notes	Established
GIC1	400197.000	86079.040	1.16	Econopeg capped with yellow disc (split) marked GIC1 in gap along hedge/fence line at CP	26-Sep-00
GIC-B1	400197.000	86059.020	1.2	PermaPeg with metal cap and yellow disc marked GIC-B1; 20m S of GIC1 at Cleavel Point	26-Sep-00
GIA1	400699.980	86795.001	1.25	PermaPeg with metal cap and yellow disc marked GIA1; by land-end of jetty on Green Island	19-Apr-02
GIA2	400699.990	86755.020	0.65	PermaPeg with metal cap and yellow disc marked GIA2; 20m S of GIA1	19-Apr-02
GIA3	400505.000	86525.010	18.09	PermaPeg with metal cap and yellow disc marked GIA3; in west of Island by Helipad	19-Apr-02
GIA4	400505.010	86510.000	17.79	PermaPeg with metal cap and yellow disc marked GIA4;15m S of GIA3	19-Apr-02

PermaPegs at Mount Folly, Bigbury Bay, Devon

Peg	Easting	Northing	Elevation (mOD)	Notes	Established
MTF1	266012.27	44888.25	108.6	PermaPeg with metal cap and yellow disc marked MTF1	Sep-03
MTF2	266014.11	44848.56	107.66	PermaPeg with metal cap and yellow disc marked MTF2; 40m S of MTF1	Sep-03

Table 16 Test pits excavated as part of case study fieldwork on Green Island, 2001-2003.

TP	Easting	Northing	Elevation of top of pit (mOD)	Depth of excavated pit (m)	Season
02	400647.130	86749.640	1.880		2001
03	400680.010	86780.010	1.190		2001
04	400459.680	86681.120	6.150		2001
05	400510.015	86690.030	5.280		2001
06	400547.520	86697.900	4.750		2001
07	400585.030	86715.000	3.620		2001
08	400679.690	86735.550	1.690	0.760	2003
09	400460.040	86650.010	11.170		2001
10	400500.100	86655.000	8.250		2001
12	400672.330	86695.100	8.880		2003
13	400654.600	86662.050	4.640	1.100	2003
15	400473.260	86615.170	15.320		2001
16	400510.040	86600.000	13.150		2001
17	400548.441	86621.989	9.630		2002
18	400617.552	86678.752	5.162		2002
19	400560.888	86575.753	13.016	0.800	2003
20	400656.000	86592.189	5.363	0.900	2003
21	400481.822	86552.863	19.606		2002
22	400528.992	86568.778	16.525		2002
23	400575.775	86585.575	11.478	1.000	2002
24	400715.400	86616.630	1.720		2003
25	400677.596	86659.860	2.819		2002
27	400509.124	86510.896	17.594		2002
28	400553.687	86523.082	16.539		2002
29	400625.182	86553.676	9.608		2002
30	400667.224	86571.674	4.705		2002
31	400651.270	86597.710	7.990	1.000	2003
32	400564.170	86702.420	5.210	0.900	2003
33	400653.523	86492.193	10.522	0.800	2003
36	400588.944	86499.175	14.644		2002
38	400695.184	86698.136	1.744		2003
40	400755.240	86587.010	1.420	0.700	2003

Table 17 Percentages of diagnostic material recovered from Green Island test pit survey.

	Pottery No	Pottery mass	Flint No	Flint mass	Shale No	Shale mass	Slag No	Slag mass	B/O No	B/O mass
TP2	3.43	4.39	9.38	14.74	2.53	8.61	0.00	0.00	0.00	0.00
TP3	0.65	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TP4	1.29	0.96	3.13	1.12	0.95	0.73	0.00	0.00	0.00	0.00
TP5	0.70	0.46	3.13	1.81	1.58	3.30	0.00	0.00	0.00	0.00
TP6	1.54	1.48	1.88	1.46	0.00	0.00	0.00	0.00	0.00	0.00
TP7	8.85	8.02	38.13	38.30	28.16	9.16	0.00	0.00	0.00	0.00
TP8	12.23	11.41	N/A	N/A	N/A	N/A	N/A	N/A	0.00	0.00
TP10	0.20	0.08	0.63	1.22	1.90	3.35	0.00	0.00	0.00	0.00
TP13	7.71	13.19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TP16	0.25	0.42	1.25	2.56	0.00	0.00	0.00	0.00	0.00	0.00
TP17	8.16	3.64	26.88	19.98	31.96	21.98	53.33	55.30	6.25	0.31
TP18	4.18	3.98	6.88	13.17	3.16	3.30	0.00	0.00	25.00	31.64
TP19	1.19	0.97	0.00	0.00	0.32	0.14	0.00	0.00	0.00	0.00
TP20	16.51	15.81	0.00	0.00	0.00	0.00	20.00	23.77	0.00	0.00
TP23	5.12	11.56	1.25	0.33	25.63	42.49	6.67	1.91	43.75	23.44
TP25	4.62	3.96	3.75	1.14	1.27	0.55	6.67	8.51	25.00	44.61
TP28	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TP29	0.80	0.46	1.88	1.00	0.32	0.18	0.00	0.00	0.00	0.00
TP30	2.64	2.19	0.00	0.00	0.95	0.37	13.33	10.51	0.00	0.00
TP31	2.83	4.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TP32	10.04	7.57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TP33	0.55	0.35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TP40	6.46	4.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
unstrat	0.00	0.00	1.88	3.18	1.27	5.86	0.00	0.00	0.00	0.00

B/O Bone/other material

Table 18 Shale armlets found on skeletons in Iron Age graves.

Site	Date	Wearer	Armlet position	Armlet diameter
Maiden Castle War Cemetery	Iron Age C	Adult female	above right elbow	*c*.66 mm
Fordington Cemetery	Romano-British	Adult female	wrist	*c*.60 mm
Tollard Royal	Iron Age	Adult male	left wrist	*c*.56 mm
Winnall Down	Middle Iron Age	Male youth (<15 years old)	on arm	*c*.55 mm

Table 19 Enclosures within five kilometres of the coast of Bigbury Bay, Devon.
(Data from Devon HER)

Devon HER No	Easting	Northing	Note	Ref/Date
SX64NE/190	266950	46260	rectilinear single ditch enclosure 50 m x 55 m; wide views to Avon estuary and to the sea.	DAP/VL 29-31 070792
SX64NE/191	266300	46900	sub-rectangular enclosure 60 m x 60 m; NW and SE sides are double-ditched or recut.	DAP/VL 25-28 070792
SX64NW/42	264600	47900	single ditched enclosure, diameter *c*.60 - 70 m.	DAP/SE 7,8 270690
SX64NW/43	264500	46300	single ditched, sub-rect enclosure with internal features; possibly attached to another enc.	DAP/PF 4-6 270789
SX64NW/44	263700	47200	single ditched, circular enclosure.	DAP/0A 7 120789
SX64NW/45	262100	46500	single ditched, rect enc; *c*. 70 m x 30 m; possible farmstead of late prehistoric/RoB date.	DAP/PF 9,10 270789
SX64NW/46	263500	46200	part curvilinear single ditch enc SE of Scobbiscombe.	DAP/PF 7,8 270789
SX64NW/47	263100	47100	Scobbiscombe double-ditched sub-rect enc; probably surrounded by IA/RoB farmstead.	DAP/OA 6 120789
SX64NW/48	263000	47000	Scobbiscombe single ditched, rectilinear enclosure.	DAP/OA 6 120789
SX64SE/57	266000	44800	single ditched rectilinear enclosure with second irregular enclosure adjacent. NB: Mount Folly site.	DAP/OA 1-3 070789
SX64NE/36	267000	49400	oval hse c.500 m E of Yarrowbury. U/v settlement. RAF/CPE/uk/1890 nos 3081-2.	DCC no 58/97-8 Dec 1946
SX64NE/57	269610	48900	incomplete sub-rect ditch enc; linear feature runs SW; on level hilltop; single ditch. DPRFP 1987-8, photo D23.	DAP/CD 8 130784
SX64NE/58	269520	48750	double ditch sub-rect; moderate SE slope, slight ledge; bisected by fence. DPFRP 1987-8, photos D24/25/26.	DAP/CD 8 130784
SX64NE/59	269820	49290	circ single ditch enc; SW slope; spring rises 100 m SW. DPRFP 1987-8, photo D11.	DAP/CD 4A 130784
SX64NE/60	265300	46200	rect single ditch enc; c.60 m x 40 m; SW slope. DPRFP 1991 Q25.	DAP/PF 1-3 270789
SX64NE/189	265700	49200	irreg single ditch end; c.120 m x 60 m; level hilltop; extensive views W and N.	DAP/VL 3234 070792
SX64NE/192	268600	45000	part rect single ditch enc; N-S c45m; on NW slope above Stiddicombe Creek.	DAP/NZ 13-15 120789
SX65SW/70	264400	50600	Butland Farm, Modbury; rect double ditch enc (see Horner 1993).	DAP/VM 00-1 070792
SX65SW/72	260400	54500	rect single ditch enc; c90m long.	DAP/MN 4,5,6 260689
SX65SW/73	260000	54600	circ dark mark c20m diam; stony area of rock outcrops.	DAP/MN 6 260689
SX65SW/78	264800	54500	single ditch enc; c90m x 50m.	DAP/YW 5,6 080895
SX65SE/117	265000	54500	rect double ditch enc; c90m x 50m; probably enclosed Medieval strips; gentle SE slope.	DAP/YW 3,4 080895
SX54NE/56	258800	49100	circ single ditch enc *c* 50m diam. 2 int dark marks. Level area at end of spur between 2 streams.	DAP/VM 7-9 070792
SX74NW/50	274490	46110	double ditch or 2-phase irreg enc; recorded as prehistoric settlement	DAP/CD 10 130784
SX74NW/51	274740	45840	single ditch round enc; diam 40-50m	DAP/CD 12 130784
SX74NW/59	274980	48170	small rect single ditch end *c* 50x30m. Level hilltop.	DAP/OO 3,4 180789
SX74NW/60	274370	47900	E and S sides of rect single ditch enc. Other faint marks adjacent.	DAP/OO 1,2 180789
SX74NW/105	272700	47100	double ditched rect enc. Ext diam *c*. 60 m; entrance gap in SE side. Curved internal feature. Field name 'Borough' to S.	DAP/AAY 11-15 310796
SX75SW/27	273640	50050	rect single ditch enc *c* 60x70m; entrance in NE side.	DAP/Z 12 260684 & DAP/WT 14,15 180794

Table 20 Pot sherds recovered from excavation of two enclosure ditches at Mount Folly, Bigbury on Sea, 2003.

Find number	Trench	Mass (g)	Description	Comments by John Allan, Royal Albert Memorial Museum, Exeter	Comments by Henrietta Quinnell, Exeter University	Comments by Barry Cunliffe, Oxford University
0010	One (F001)	2.849	thin sectioned (original mass 4.576g); Dark fabric with cream outer slip coating.	Iron Age or early Roman	granite derived, South Devon. Similar to Roman South Devon ware but not absolute match. Probably late Iron Age	All sherds date from the third - first centuries BC with the exception of f2006 which is likely to be first century AD. All fabrics similar to those from Brittany. All except 2006 have granitic derived components
0015	One (F002)	0.247	fragment; dark fabric	too small to comment	too small to comment	
2006	Two	0.934	small rim; pale 'grey' fabric	Roman Exeter sandy grey ware, 'fortress type'; first or second century AD	Exeter sandy ware; thin rim of upright neck vessel; vertical beaded jar; early Roman	
2021	Two	1.665	thin sectioned; originally one sherd (mass 2.990g) that broke into four fragments during the thin sectioning process; distinct curved profile	Granitic/granite derived. Late Iron Age	?slate/rock? inclusions;?quartz	Possibly some white rock tempers and other inclusions suggesting this source was further from the granite.
2022	Two	3.005	dark fabric	Late Iron Age; South Devon	no comment	
2023	Two	1.943	three fragments (decorated) found in clump together	Late Iron Age Glastonbury Ware	South west decorated ware	
2036	Two	1.007	dark fabric	Iron Age	no comment	

NB The pottery was also examined by Roger Taylor. His report is presented as Appendix Six.

APPENDIX ONE

Gazetteer of sites identified as possible Iron Age maritime nodes on the English Channel coast.

The sites are presented in east – west order along the coast.

The identified sites have been classified as 'definite', 'probable' and 'potential' coastal nodes depending on the degree of correlation with the physical traits model developed in Chapter Four. 'Definite' sites are known, from established study, to have been used as coastal sites in the Iron Age. 'Probable' sites exhibit the physical traits and have other evidence, such as contemporary imports, to suggest a functioning coastal site. The 'potential' sites match the physical characteristics but to date have not been investigated or have no other evidence to suggest their Iron Age use.

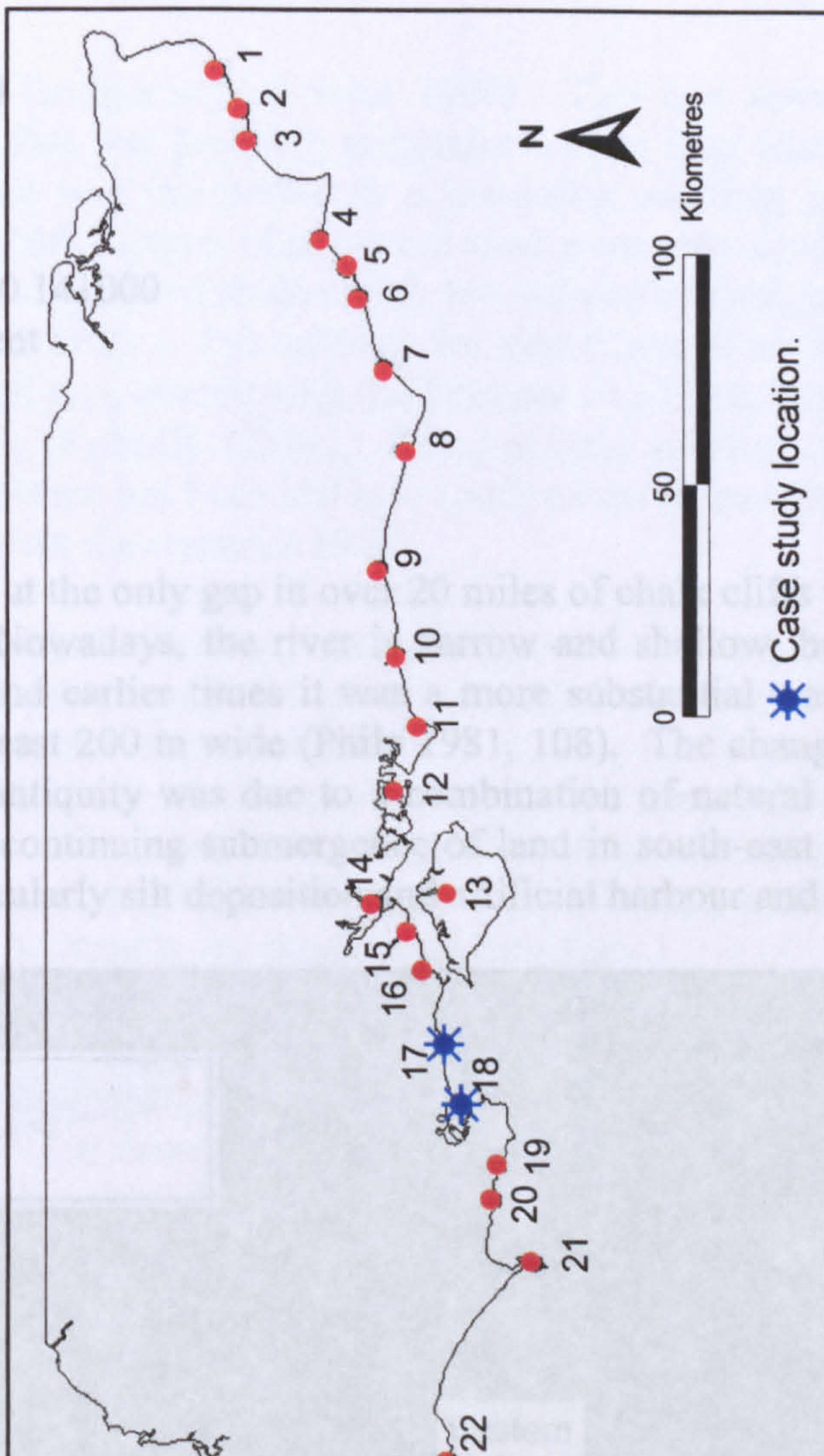
In addition, where sufficient evidence permits, the sites have been ranked as primary, secondary or tertiary (detailed in section 9.4.1 of the main text). The terms relate to the level of interrelation within the maritime network. Primary sites were involved in connections along and across the Channel. Secondary sites participated in the inter-regional network. Tertiary sites were involved in local interactions along the coast and rivers.

40 sites were identified in Chapter Five and the main corpus of data for each site and, where appropriate, its hinterland (defined as within five kilometres of the coastal site) is contained in this gazetteer.

Copy of Table 6 List of 40 sites identified as possible Iron Age coastal nodes on the English Channel coast.

Ref	Site	Easting	Northing	County	Level of proof of node status	Possible complex of sites	assoc HGE
1	Dover	632000	141000	Kent	probable	y	y
2	Folkestone	623210	135950	Kent	potential	y	n
3	Hythe	616500	134150	Kent	potential	n	n
4	Rye Bay	595050	117950	Sussex	potential	y	n
5	Fairlight	588200	112100	Sussex	potential	n	n
6	Hastings	582050	109450	Sussex	probable	y	y
7	Pevensey	565900	104000	Sussex	potential	y	n
8	Seaford Bay	548000	99000	Sussex	probable	y	y
9	Shoreham	521600	104850	Sussex	potential	y	y
10	Arun Valley	502800	101000	Sussex	potential	y	n
11	Selsey and Pagham	487000	96500	Sussex	probable	y	n
12	Hayling Island	472500	101500	Hampshire	potential	n	y
13	Isle of Wight	450000	87000	Hampshire	probable	y	y
14	Hamble Common	448000	106250	Hampshire	potential	y	y
15	Beaulieu River	441900	98750	Hampshire	potential	y	y
16	Lymington	433000	95500	Hampshire	potential	n	y
17	Hengistbury Head	417250	90880	Dorset	definite	y	y
18	Poole Harbour	403700	86800	Dorset	probable	y	y
19	Kimmeridge	390600	79000	Dorset	potential	n	n
20	Bindon Hill	382900	80300	Dorset	probable	n	y
21	Portland	369000	71000	Dorset	probable	y	y
22	Seaton	325650	89820	Devon	probable	y	y
23	Sidmouth	312900	87400	Devon	potential	y	y
24	Otterton	307650	81950	Devon	potential	n	y
25	Topsham	296400	88200	Devon	probable	y	y
26	Teignmouth	294000	72230	Devon	potential	n	n
27	Tor Bay	289600	60240	Devon	potential	y	y
28	Dartmouth	287900	51300	Devon	potential	y	y
29	Kingsbridge Estuary	274100	39200	Devon	potential	y	y
30	Bigbury Bay	265600	43900	Devon	potential	y	y
31	Wembury Bay	250100	48250	Devon	potential	y	n
32	Mount Batten	248650	53250	Devon	definite	n	y
33	Tamar Estuary	244000	56000	Cornwall	probable	y	n
34	Looe Bay	225700	53300	Cornwall	potential	y	y
35	Fowey	212300	51300	Cornwall	probable	y	y
36	Mevagissey Bay	201700	44800	Cornwall	potential	y	y
37	Falmouth	180600	33500	Cornwall	probable	y	y
38	Helford Estuary	178000	26500	Cornwall	probable	y	y
39	Mullion	166100	17600	Cornwall	potential	y	y
40	St Michael's Mount	151500	29800	Cornwall	probable	y	y

	No	%
Potential	23	57.5
Probable	15	37.5
Definite	2	5.0



Copy of Figure 76: Forty locations identified as Iron Age coastal nodes on the south coast of Britain. (Numbers refer to site numbers in the text - see Table 6)

Dover (Site 1)

Location

OS NGR: 632000 141000
Dover parish, Kent

Physical setting

Dover is located at the only gap in over 20 miles of chalk cliffs where the river Dour meets the sea. Nowadays, the river is narrow and shallow, but evidence suggests that in Roman and earlier times it was a more substantial water way with a wide tidal estuary at least 200 m wide (Philp 1981, 108). The change in the character of the Dour since antiquity was due to a combination of natural and artificial factors that include the continuing submergence of land in south-east Britain (see Chapter Three) and particularly silt deposition and artificial harbour and drainage works.

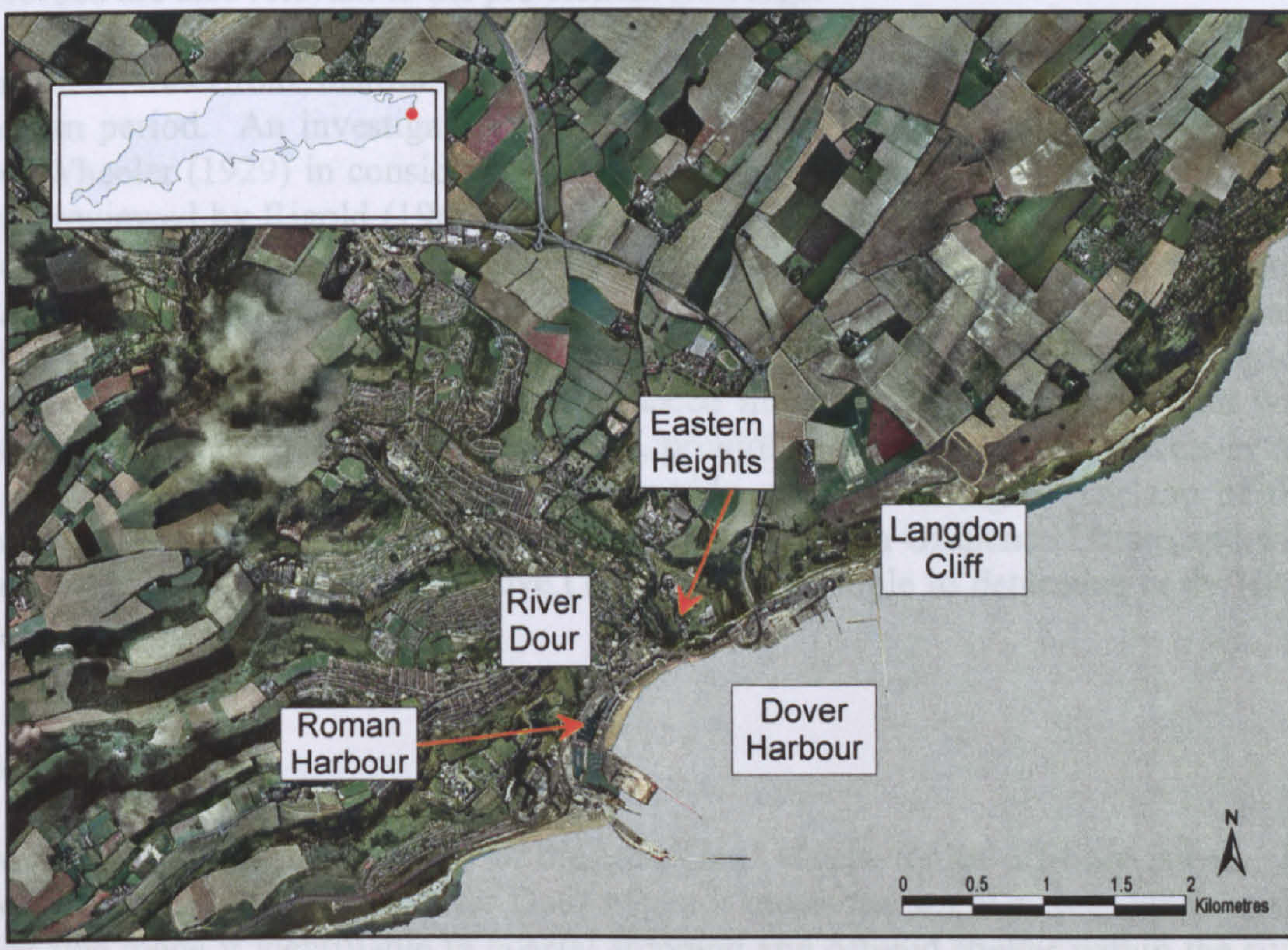


Figure 78: Aerial photograph of Dover showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Dover dominates the cross-Channel trade routes at the shortest crossing point across the Strait. Evidence of the early use of this route was provided by the find of Bronze Age metalwork off Langdon Cliff that was interpreted as the cargo from a wreck (Coombs 1976; Muckelroy 1980; 1981). Other evidence of Bronze Age use of the coast was provided by the find, in 1992, of the 'Dover boat' (Parfitt and Fenwick

1993; Canterbury Archaeological Trust 2000). This is a sewn plank boat of oak with yew withies that was probably originally *c.*12 m long (*ibid*). It was found on the river Dour, but was interpreted as a sea-going coasting, and possibly across-Channel, vessel (*ibid*). Traces of non-local sand were recovered from the bottom of the boat with a small piece of shale which was proved by analysis to have originated at Kimmeridge in Dorset, *c.* 160 miles to the west (Canterbury Archaeological Trust 2000). On the cliff top, overlooking the Channel and Dour, is the Iron Age hillfort of Eastern Heights (KeSMR 17899). There is little information known about this site and much evidence has been lost as a result of the extensive building works that have taken place over the centuries (*ibid*).

The Dour, its surrounding marshy areas and inner basin are discussed in detail by Rigold (1969), who drew on the observations of John Leland (*Itinerary c.* 1538, first published 1710-12; see Chandler 1993) to inform his interpretation of his own excavations. As the Dour is now canalised, Rigold's observations are invaluable for the demonstration of the course and nature of the river and harbour areas in the past. Although he concentrated on the (mainly early) Roman period, the observations recorded are also relevant to the pre-Roman Iron Age.

Artificial waterfront facilities are known at Dover from at least as early as the Roman period. An investigation of some of the features was conducted by Amos and Wheeler (1929) in consideration of evidence for a Saxon Shore fort. This was later reviewed by Rigold (1969) who argued convincingly for an early Roman date for the waterside facilities (Figure 14). Of particular interest were the features numbered 3, 4, 8 and 9 – a timber jetty, a log boat recorded near the mole, a chalk block quay, and a chalk block and timber jetty (Rigold 1969, 82-3). Rigold recorded feature 3 as a "timber-faced and timber-laced mole, filled with shingle" that was interpreted as an early Roman breakwater, providing a safe haven for vessels in the inner basin. It was *c.*30 m long, 4.5 m wide, and 1.4 m high. The top of the structure was on approximately the same level as Newlyn Ordnance Datum and was used by Waddelove and Waddelove (1990) as an example to determine early HAT (see Chapter Five).

Comments

Dover exhibits all the elements of the 'complex' except for an offshore island. Its location on the shore of the river Dour where it meets the sea at a clear break in the cliff line made it identifiable to coastal shipping and offered shelter within the river estuary. The river-name 'Dour' is derived from the British *Dobrā* which in turn derived from *Dubrā*, the plural of 'water' (Ekwall 1960, 149). The similarity with the Roman name for Dover, *Dubris*, is evident (see Rivet and Smith 1979, 341-2). The antiquity of use of the area for shipping is suggested by the Bronze Age boat and metalwork found offshore that might represent wreck cargo. The river and nearby trackway provided access inland away from the coast. Iron Age occupation is suggested by the hillfort overlooking the coast and Channel approaches at Eastern Heights. Extensive use of *Dubris* as an early Roman port further suggests that the area was suitable for use by shipping.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
1	Dover	x		x	x	x	x	x	x		x		x			1

Conclusion

'Probable' site.

Folkestone (Site 2)

Location

OS NGR: 623210 135950
Folkestone District, Kent

Physical setting

Folkestone is sited in a low river basin with the English Channel to the south and east and the steeply rising scarp of the North Downs to the north. To the west the land undulates, locally rising to *c*.80 m OD, with a length of a few hundred metres of beach cliffs that fringe the coastline. As at Dover, Folkestone is sited at the mouth of a river (not named but known locally as 'Harbour Water'), which is now little more than a stream leading back into the chalk zone. The river meets the sea at a convex curve in the coastline between the rocky outcrops of Mill Point and Copt Point.

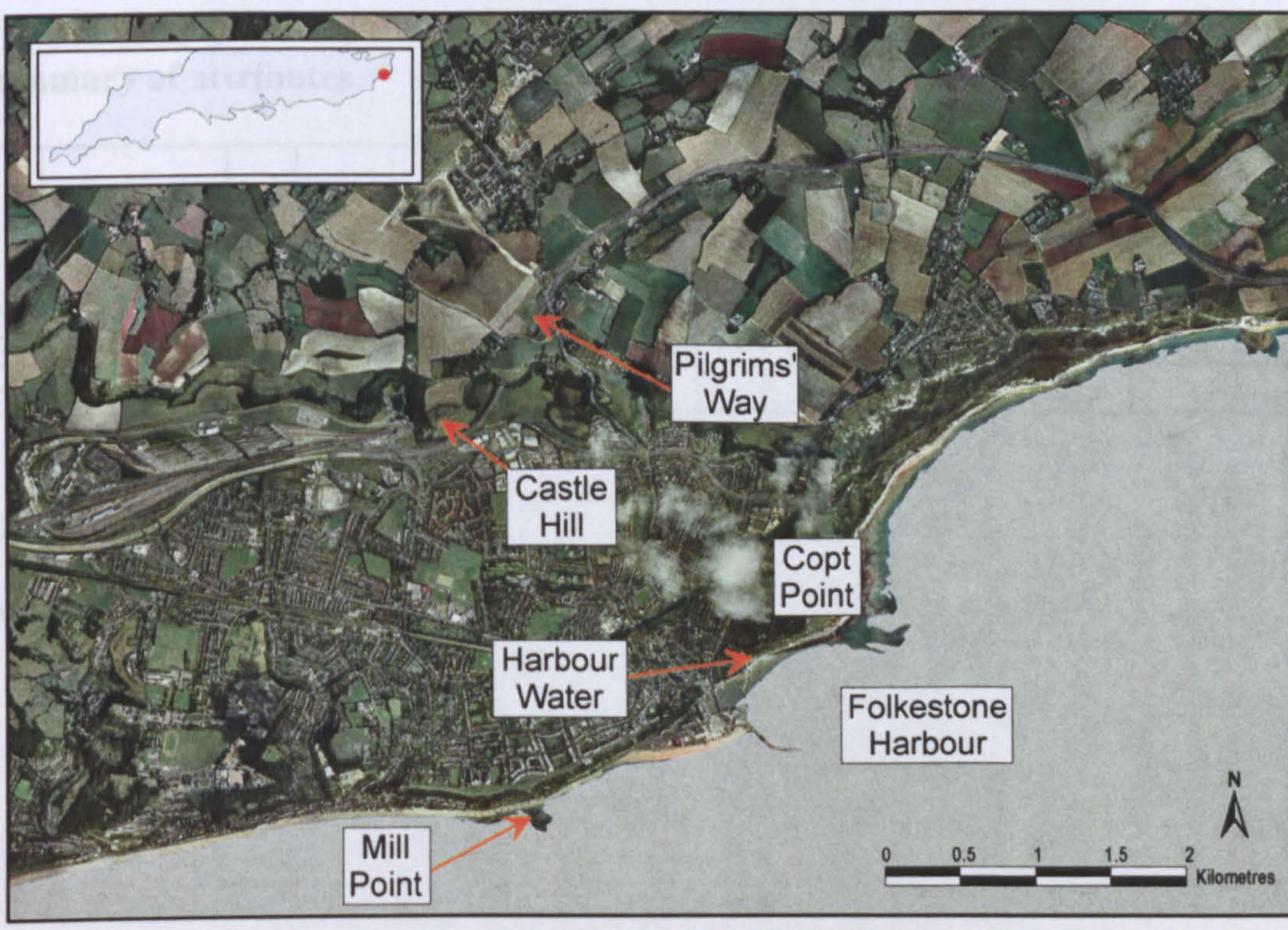


Figure 79: Aerial photograph of Folkestone showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

An occupation site attributed to Belgic and Romano-British activity was located near the top of a slope overlooking Copt Point (KeSMR 5675); finds from there included a La Tène III brooch and Iron Age gold coin (KeSMR 5693 and 5694), as well as Iron Age pottery recovered from a pit (KeSMR 5674). Copt Point later became the site of a Roman-British villa, illustrating the continuity of use of a physically advantageous site.

In 1998, a watching brief for the Folkestone waste water scheme recorded a timber quayside of oak piles and planks at the back of the present harbour (KeSMR 17963). As yet it remains undated.

Comments

The distribution of Bronze Age, Iron Age and Roman finds recorded on the Kent SMR suggests that the main activity was located near Copt Point. The coast in this area contains several points that are suitable for beaching vessels, including sand coves in the immediate vicinity of Folkestone. However, it is the riverine access inland that suggests a possible interpretation as a coastal node for the purposes of this study. Many Iron Age gold and silver coins have been recovered from the beach between Mill Point and the river mouth. The topographic situation, matching the physical criteria identified in Chapter Three, together with the known sites and finds, suggest the coastal area of Folkestone was a suitable node location.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
2	Folkestone	x			x	x	x						x		x	3

Conclusion

'Potential' site.

Hythe (Site 3)

Location and plan

OS NGR: 616500 134150
Hythe parish, Kent

Physical setting

Hythe is an area of firm strong beaches and flat lands that run for up to a kilometre back to 'The Roughs', a rising ridge that runs east – west at heights of up to *c*.100 m OD. Nowadays, Hythe is sheltered to the west by Romney marsh and Dungeness, but prior to reclamation schemes in those areas in the nineteenth century, it would have been rather more open. However, in the medieval period, Hythe operated a river-fed natural harbour that had a narrow coastal entrance providing shelter for boats within.

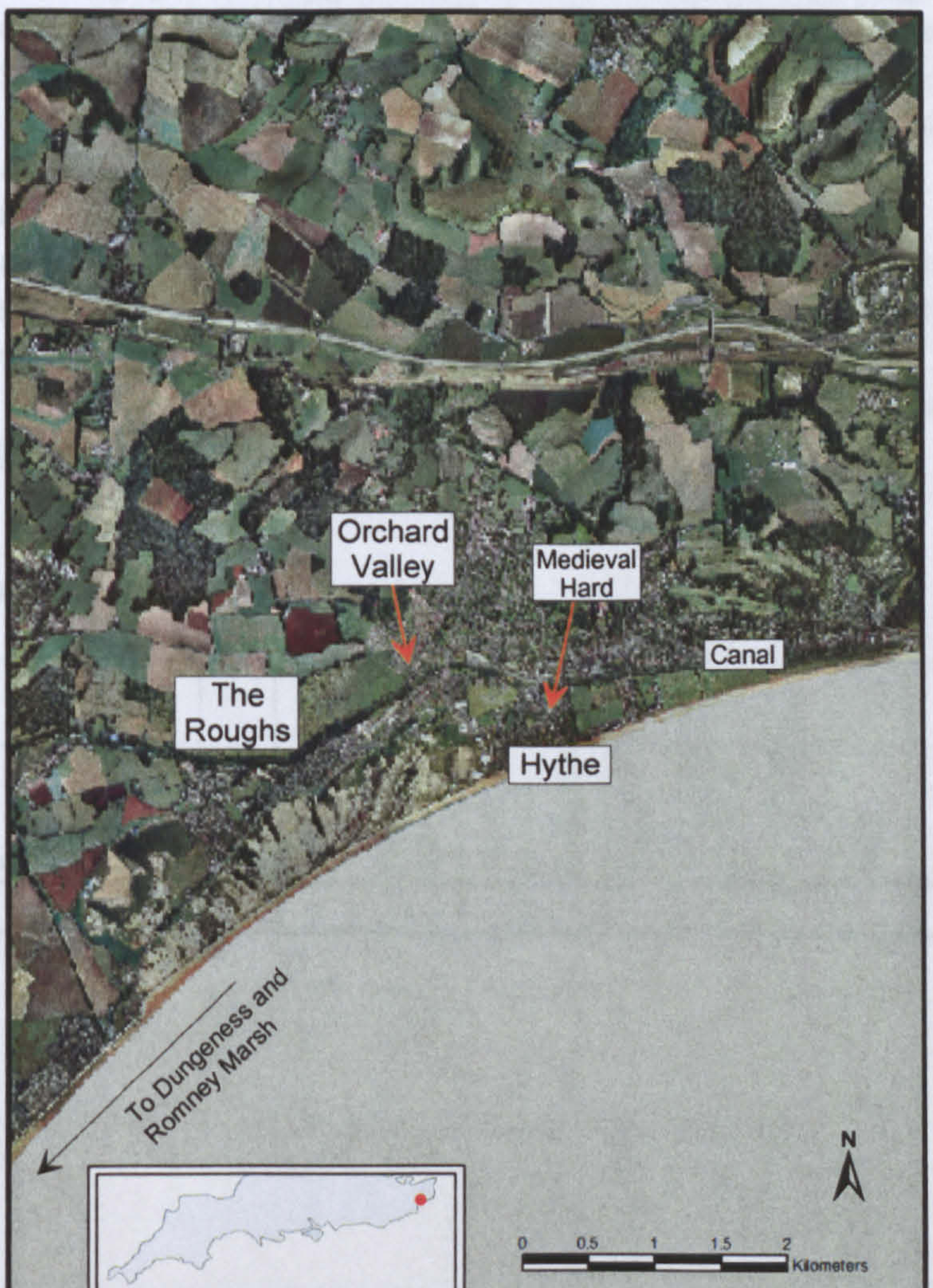


Figure 80: Aerial photograph of Hythe showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Iron Age sites (occupation and settlement areas) have been recorded at Orchard Valley, at the base of the slope of The Roughs near to Brockhill Stream (that now feeds into the canalised river and near the route of a former Roman road) (KeSMR 4315).

Two bronze axes and two Iron Age coins were found on the beach at Hythe (KeSMR 4319 and KeSMR 4304). Belgic pottery has been found near the original course of the river (KeSMR 4227).

A medieval hard for beaching boats was constructed within the shelter of the river on its approach to the beach (KeSMR 17138).

Comments

Although the former topography of the coast is not known in this area, the medieval harbour and beaching points suggest how the river and beach might have been approached and used by earlier shipping. The name 'Hythe' is an old Saxon/English place name which translates as 'landing place' (Ekwall 1960, 260). Gelling (1984) provides more detail of the original *hȳth*, translating it as "landing-place on a river, inland port" (*ibid*, 76); of Hythe she states that although on the coast, the landing-place may have been "a short distance inland, on nearby rivers" (*ibid*). The rarity of the word *hȳth* as a place-name suggests it relates to a "noteworthy feature" so "is of some significance for regional history" (*ibid*, 62). The place-name evidence strongly suggests that pre-medieval shipping made use of the shelter of the river and harbour areas. Iron Age use of the area is suggested by the finds recorded on the SMR including imported pottery.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
3	Hythe	?			x	?	?				x				xx	

Conclusion

'Potential' site.

Rye Bay (Site 4)

Location

OS NGR: 595050 117950
Icklesham, Rye and Camber parishes, Sussex

Physical setting

From Camber Sands, the shore of Rye Bay curves gently over 10 km towards the south-west to Fairlight and Hastings. The area has been changed by canalisation, drainage and reclamation schemes. During prehistory, Rye was a small, round island in a lagoon (Morey 1966, 18) but now it stands inland surrounded by reclaimed land, *c.* 3.5 km from the coast (Jessop 1970, 19). Rye Harbour and Winchelsea Beach are now land-locked bodies of water that were formerly spacious harbours and landing points (Morey 1966, 29). The rivers Rother and Brede meet at the east of Rye and follow a now canalised route to the coast. The shore is sheltered by the sweep of the bay and characterised by wide, sandy beaches.

Archaeology

Hastings was developed as a Saxon town built as a seaport so evidence of any earlier activity was probably destroyed at that time (Williamson 1959, 69). The prehistoric Rye-Uckfield ridgeway runs close to the town (SuSMR 402393).

Comments

There is currently no accurate reconstruction of the landscape and layout of rivers and the coast for this area in the Iron Age. However, recent work by Andrew Woodcock (2003) and comparisons with other periods suggest this area of the coast had sheltered, sandy beaches with natural harbour or mooring areas at or near the mouths of the rivers that provided good access routes inland.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
4	Rye Bay	x			x	?	?			?						

Figure 81: Aerial photograph of Rye showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Conclusion

'Potential' site.

Fairlight (Site 5)

Location

OS NGR: 588200 112100
Fairlight parish, Sussex

Physical setting

Fairlight Cove lies at the western end of the sand and mud beach which runs south-west from Pett Level. The Cove is backed by a cliff which rises steeply to over 60 mOD. The western edge of the cove is marked by rock ledges. At the eastern end is the flat-topped hill of Fairlight (*c*.50 mOD). The area is sheltered to the west by the sweep of the shore.

Figure 82: Aerial photograph of Fairlight showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

A late Bronze Age spearhead was recovered from the shore near Pett, *c.*15.25 m (*c.*50 feet) below HWM (KeSMR 969494; Manwaring Baines 1973). Late Iron Age pottery was found by a spring at the beach at Cliff End (SuSMR 969385). Other finds from the area may be associated with a possible Iron Age building at Fairlight Quarry, Covehurst Bay (SuSMR 968487), *c.*2.5 km further west along the coast. A trackway, considered to be prehistoric (SuSMR 1043189) runs north-westwards inland for *c.* 20 km to Netherfield. Roman coins and pottery have been recovered from along the route of the trackway (*ibid*).

Comments

The beach at Fairlight Cove is sheltered from the west and suitable for beaching vessels. Immediately behind the shore, the high ground of Fairlight provides a useful landmark for vessels at sea. Although there is no river running into this area, inland access is provided by the trackway which runs away from the coast. These characteristics match the physical traits identified in the nodal model and finds suggest the area was used during the Iron Age.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
5	Fairlight		?	x	x	?	x								x	3

Conclusion

'Potential' site

Hastings (Site 6)

Location and plan

OS NGR: 582050 109450
Hastings District, Sussex

Physical setting

The modern beach at Hastings is maintained by artificial deposits of sand removed from elsewhere along the coast. The natural state of the coast can be seen to the east and west of the town where the beaches are of mud and stone, making them firm and useful for beaching vessels. Behind the beach the land generally rises gently to the north, but there are areas of steep cliff at Castle Hill at the end of West Hill promontory, and East Hill where the cliff top reaches 100 mOD.

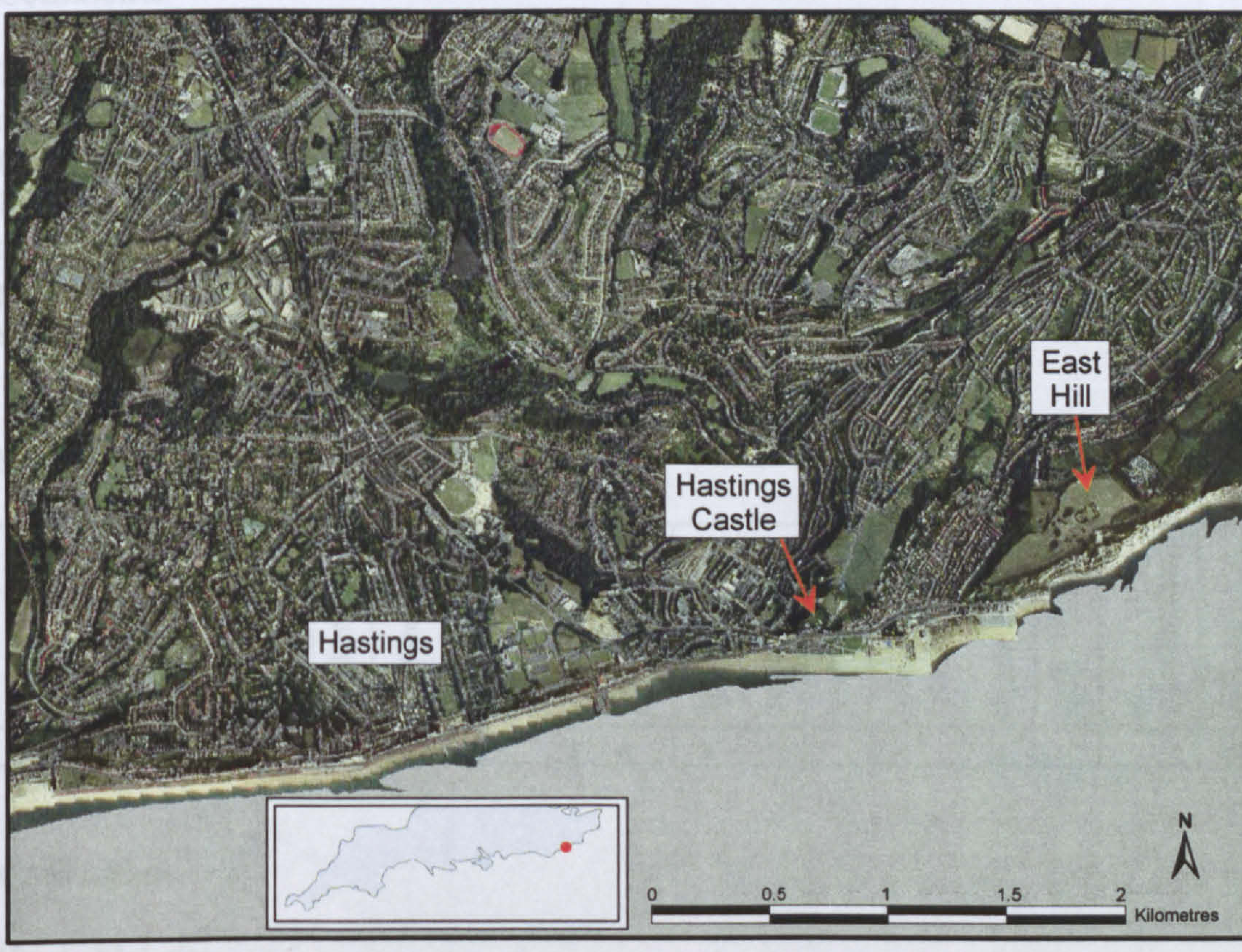


Figure 83: Aerial photograph of Hastings showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

East Hill: a mainly univallate bank and ditch isolate a spur of *c.*14 ha on the coast (Hogg 1975, 203-4). Hogg considered it an "important promontory fort which has received less attention than it deserves" (*ibid*, 203). He suggested the site was of particular significance due to its similarities with French earthworks, particularly Fécamp type. The Fécamp classification was established by Wheeler and Richardson (1957) based on the characteristics of the Camp du Canada at Fécamp. This type was distributed mainly in the Somme-Seine area (*ibid*, 12) and was recognised as "(a) a preference for commanding promontories, which are cut off by a huge rampart, 20-30 ft. high, and a broad, flat, or bluntly rounded, canal-like ditch, with steep external side sometimes reinforced by a small counterscarp bank; and (b) formidable entrances often flanked by bold in-turns of the main rampart" (*ibid*, 11). East Hill matches criterion 'a' but due to erosion of the southern portion, the entrance and any in-turn is not known.

Hastings Castle settlement: beneath the Norman outer bailey, excavation revealed an Iron Age earthwork (Barker and Barton 1968). The position and extent of the earthwork led to the suggestion that the entire promontory was occupied in the Iron Age (*ibid*).

Comments

The shore at Hastings faces south-east to the English Channel. The area is distinguished by two Iron Age promontory sites within a kilometre of each other, East Hill hillfort (Hogg 1975) and Hastings Castle Iron Age site (Barker and Baxter 1965). Although the area does not have riverine access inland, the coast was highly accessible to Iron Age shipping with sheltered beaching points beneath both of the promontory sites. The two sites, with continental imports and the location on the south-east facing coast suggest this area as a 'probable' coastal node.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
6	Hastings		x	x	x		x	x	?			x	x		xx	

Conclusion

'Probable' site

Pevensey Bay (Site 7)

Location

OS NGR: 565900 104000

Westham and Pevensey parishes, East Sussex

Physical setting

The area defined as Pevensey Bay runs west from Pevensey *c.*12 km to the prominent point of Beachy Head. The bay has no offshore obstructions or hazards and, approached from the Channel, the area is clearly distinguished by the cliffs of Beachy Head[55] that contrast with the flat lands of the levels around Pevensey. The east of the area has been changed by drainage schemes and reclamation to the extent that the Roman coastal fort of *Anderitum* at Pevensey now lies *c.*1.5 km from the coast. The bay area was formerly a wide, tidal basin that stretched *c.* four miles inland (Williamson 1959, 54).

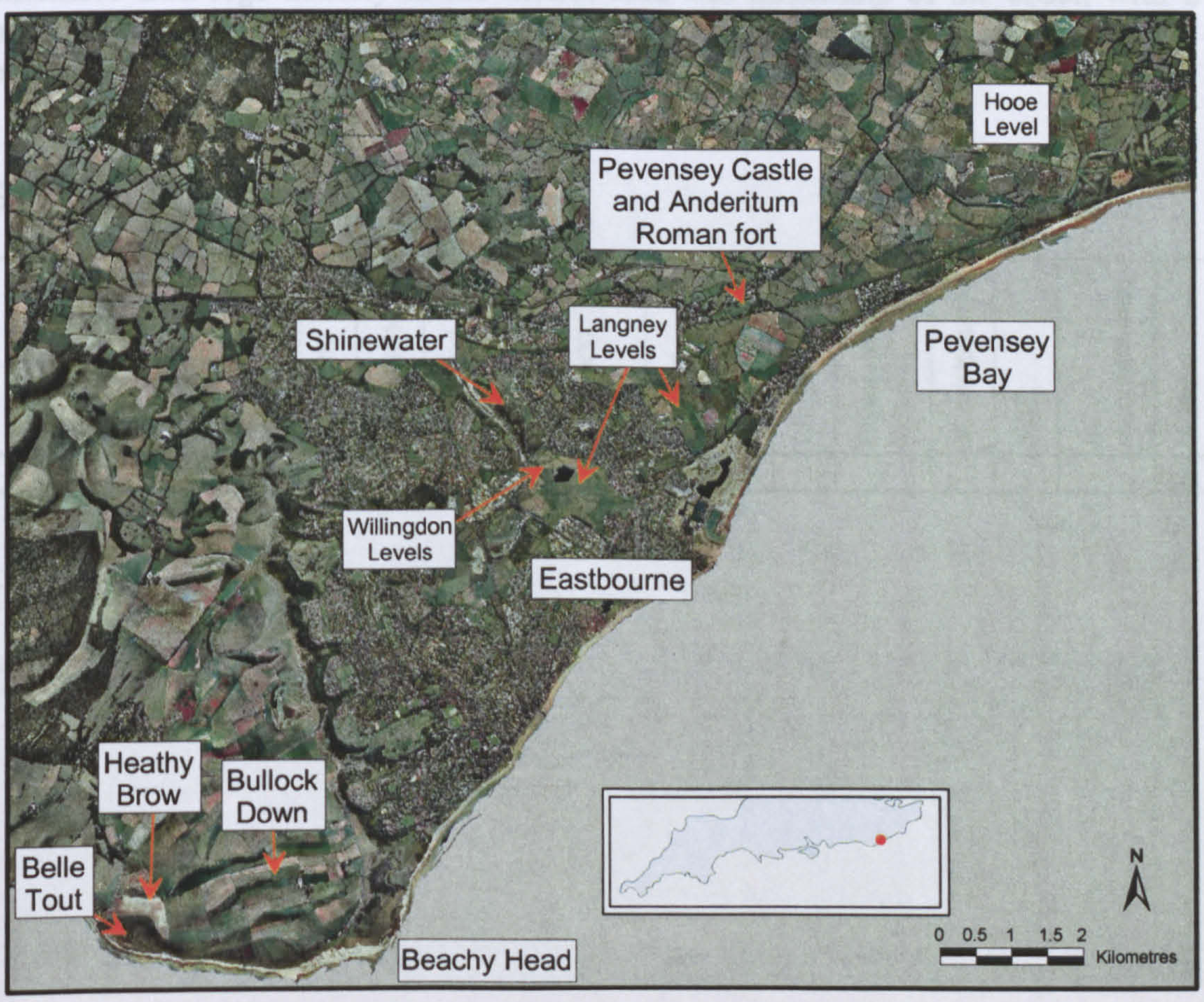


Figure 84: Aerial photograph of Pevensey Bay showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

[55] Beachy Head rises sheer from the narrow beach to *c.*164 mOD and is the most southern point in the visually dramatic line of chalk cliffs that run south-east from Cuckmere Haven.

Archaeology

Finds from the area include a looped and winged bronze axe, four gold bracelets, and a Carp's Tongue sword hilt (*c.* seventh century BC) found on the beach in 1806 after a cliff fall at Beachy Head (Jessop 1970, 135), and Gallo-Belgic gold quarter staters were more recently recovered from Eastbourne beach (SuSMR 619020 and SuSMR 619013; Rudling 1984). Of particular interest to this study is the Bullock Down Iron Age settlement and track way behind Beachy Head, with the hillfort site of Belle Tout nearby (Bradley 1971a; and see Russell 1997 for detail and further references regarding Belle Tout). A Bronze Age round barrow at Beachy Head contained Kimmeridge shale, and an Early Iron Age settlement, Heathy Brow, located on the very high ground behind Beachy Head also contained a fragment of a shale bracelet (SuSMR 670618). The shale finds are evidence of the along-Channel transport of materials from the central to south-east sector.

Comments

The combination of finds, sites and suitable topographic characteristics suggests extensive Iron Age activity in the littoral area and hinterland of the coast, with a possible nodal focus in the sheltered area of Eastbourne where boat-landing was possible.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
7	Pevensey		x	x	x		x						x		xx	

Conclusion

'Potential' site

Seaford Bay (Site 8)

Location and plan

OS NGR: 548000 099000

The bay covers the area between and including Newhaven and Cuckmere Haven. Newhaven, Seaford, and Cuckmere Valley parishes, West Sussex

Physical setting

The west of the bay is marked by South Hill and Cuckmere Haven. The haven is the mouth of the Cuckmere River which rises at Foul Mile and flows *c.*35 km to the sea. To the west of the Haven, the land rises gradually to Seaford Head and then falls away to a flat plain east of Newhaven.

At the east of the bay, the river Ouse flows over 30 km from the Wealden district to the English Channel at Newhaven. The river's route rises gently away from the shore, but is fringed by steeply rising hills that exceed 155 mOD at Itford Hill, the site of a Bronze Age settlement *c.* five kilometres from the coast. The mouth of the river is marked by flat land to the east and a steep knoll, Castle Hill, to the west.

Figure 85: Aerial photograph of Seaford Bay showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Newhaven promontory fort: Bronze Age, Iron Age, and Romano-British use of Castle Hill (SuSMR 406342). Iron Age and Roman coins have been found at the site (SuSMR 406240).

A set of six tools, a winged, socketed axe, two socketed gouges, a tanged chisel, an awl, and a knife (all bronze) were found at Newhaven and may have belonged to a carpenter (Jessop 1970, 133).

Iron Age quarter staters imported from the continent and the territory of the Durotriges were recovered from Seaford (SuSMR 469836; SuSMR 4698370; SuSMR 469838). These suggest links across and along the Channel.

Iron Age gold armlets have been found on the beaches at Cuckmere Haven, Eastbourne and Selsey (Jessop 1970, 135-6).

Comments

The mouth of the river Ouse is dominated by Castle Hill. The continuous occupation of the promontory from the Bronze Age to the Romano-British period confirms the suitability of the site for occupation and highlights the importance of the point where the river, with extensive inland reach, meets the Channel and the coasting routes. The main elements of the site were unfortunately destroyed by erosion and later use. This provides an excellent location to monitor and possibly control access to the river and inland routes.

Similarly important is the position of Seaford Head hillfort, overlooking the bay and Channel approaches to both the Ouse and Cuckmere. The inland access afforded by both rivers, combined with ease of approach from the coasting routes to the safe havens and the location of the 'hillforts' and Iron Age finds suggest that the area probably served as a coastal node, although it is not currently possible to define the focus of that node.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
8	Seaford Bay	x	x	x	x	x	x	?	?		x		x		xx	2

Conclusion

'Probable' site

Shoreham (Site 9)

Location

OS NGR: 521600 104850
Adur District, Sussex

Physical setting

Shoreham lies on the flat, sandy coast where the river Adur meets the sea after flowing more than 25 km from its source near Twineham. Two kilometres north of the Shoreham coast the land rises on either side of the Adur to Lancing Hill in the west (81 mOD) and Mill Hill (104 mOD) then Beeding Hill (169 mOD) to the east.

The river carries a large amount of silt that is deposited near its mouth at Shoreham Harbour. Nowadays, the harbour is regularly dredged to maintain an adequate depth of water.

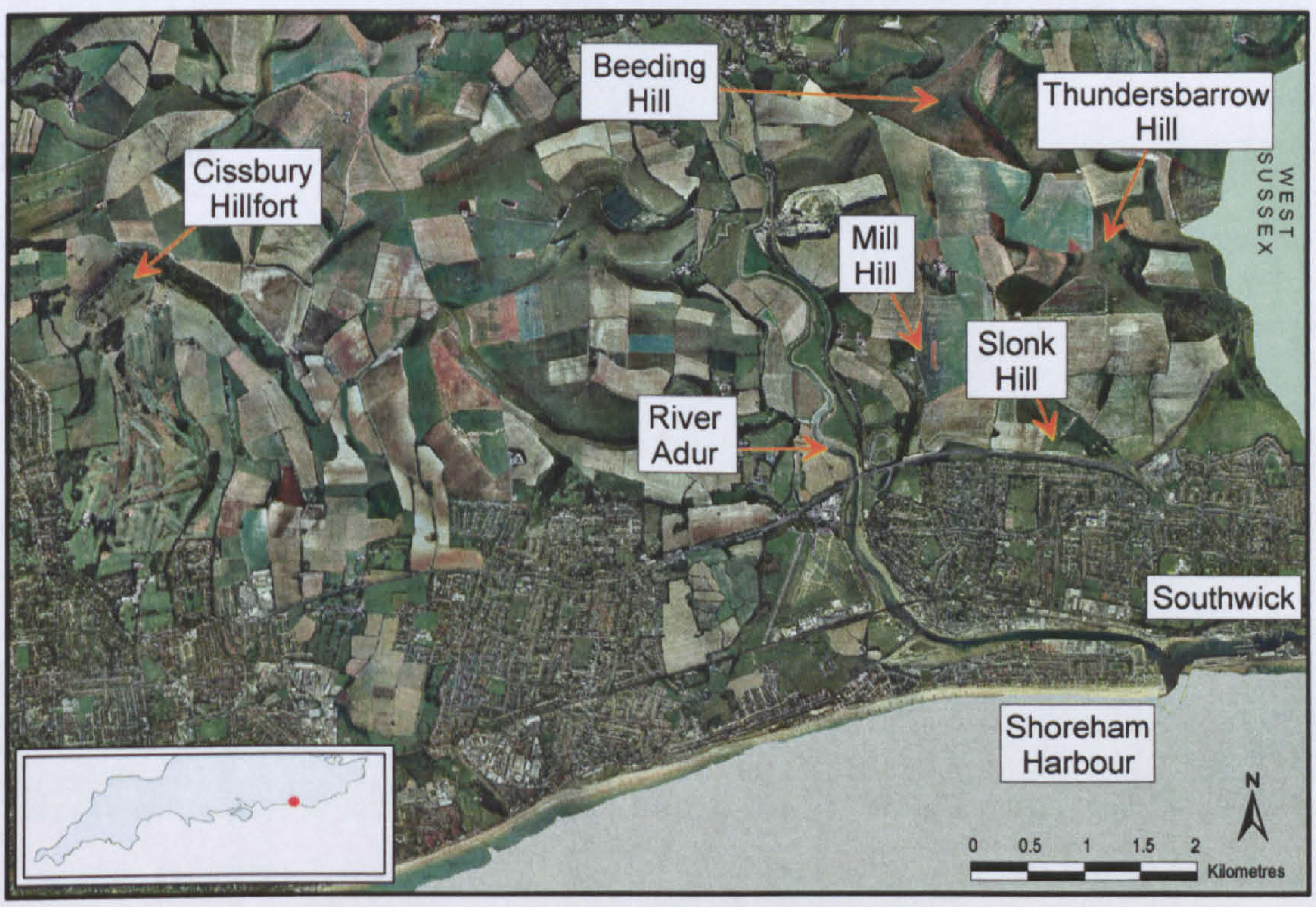


Figure 86: Aerial photograph of Shoreham showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Imported Iron Age material has been found at Cissbury univallate hillfort which lies *c.* 8.5km north-west of Shoreham Harbour. A similar Iron Age settlement has been recorded on Thundersbarrow Hill, three kilometres north of the harbour (NMR 911108). Other Iron Age habitation evidence was uncovered on Mill Hill (NMR

626090) and at Slonk Hill (NMR 626089). At Southwick, excavation of a Roman villa revealed evidence of an earlier, Iron Age, hut (NMR 626098).

Comments

The sheltered beaches, nearby hillfort and extensive riverine access suggest the area of Shoreham as a 'potential' coastal node, suitable for use by Iron Age vessels.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
9	Shoreham	x			x	x	x		x		x		x			

Conclusion

'Potential' site

Lower Arun Valley (Site 10)

Location

OS NGR: 502800 101000 (mouth of river Arun at Littlehampton)
Littlehampton, Lyminster, and Arundel parishes, West Sussex

Physical setting

The rivers Arun and Rother merge at Pulborough to flow over 35 km on a meandering route to the sea at Littlehampton. The wide, shallow flood plain is flat and low-lying. Prior to the embankment works, this was a wide, tidal estuary (Williamson 1959, 97). The mouth of the river was formerly a miniature delta of channels running through the beach sands (*ibid*, 269).

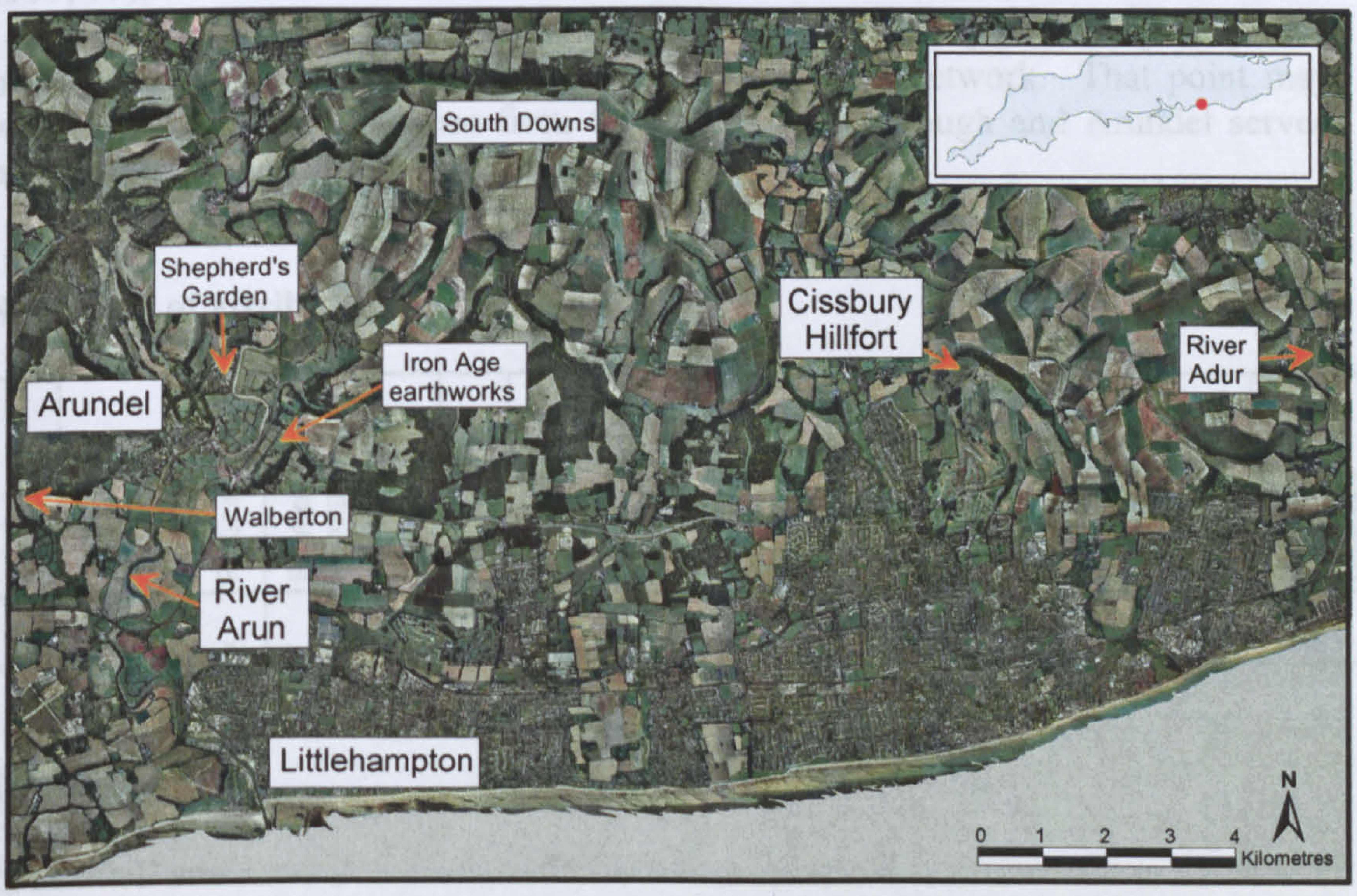


Figure 87: Aerial photograph of the lower Arun valley showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Cissbury hillfort is located *c.* 10 km to the east of Arundel, between the rivers Arun and Adur. Iron Age imports and settlement evidence have been recovered from within the hillfort area. The river Arun was a focus for prehistoric activity. A small round univallate earthwork sits on a slight rise to the east of the river at Arundel (undated), and to the west ditches and earthworks dated to the Iron Age have been recorded at Walberton (NMR 1313989) and Shepherd's Garden in Arundel Park

(NMR 919041). Undated log boats have been recovered from the Arun valley (Jessop 1970, 51).

Comments

The river Arun was named *Trisanto* by Ptolemy (Geography II 3.3; 12-13) and has been suggested as a British river name suggesting flooding or strong movement (Rivet and Smith 1979, 477). It was one of seven *Trisantona* rivers studied by Bryony Coles (1994; see also Chapter Three). She proposed the river was an ancient route and, as such, could well have been known and used in the Iron Age. It has been suggested that the main focus of port activity would have been up river, not on the coast (B Cunliffe pers. comm.; C Wells pers. comm.) and that Pulborough saw river traffic in the Bronze Age – Roman period when a port probably operated there (C Wells pers. comm.). Later evidence for the up river focus comes from Arundel, that used to be the main port serving the local area until Littlehampton was developed and the river route engineered to suit a coastal port there (Williamson 1959, 97).

It is suggested that a node point existed within the lower Arun valley to link the Iron Age riverine network with the south-east coasting network. That point may well have been some distance from the coast, as Pulborough and Arundel served maritime traffic in subsequent periods.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
10	Arun Valley	x			x	x	x				x		x			2

Conclusion

'Potential' site

Selsey and Pagham (site 11)

Location
OS NGR: 487000 096500
Selsey, Sidlesham, and Pagham parishes, West Sussex

Physical setting

The Lavant is a major waterway flowing off the chalk Downs. It has changed course through time but the locations of deposits of freshwater alluvium suggest it used to flow to the sea at Pagham Harbour (Pitts 1979, 69). The date of the change in course is debated, but the earliest date suggested is during the Roman period (Bradley 1971b, 29-30; Cunliffe 1973, 56-7). It is therefore accepted in this study that during the pre-Roman Iron Age the Lavant did flow into the area of Pagham Harbour.

The Selsey/Pagham area is characterised by flat lands, subject to marine flooding, and bordered by the chalk Downs and the Hampshire Basin. Selsey Bill is all that now remains of a drowned peninsula (Jessop 1970, 22), the former extent of which is now marked by the offshore Mixen Rock (beyond the southern edge of Figure 88) (Williamson 1959, 23).

Archaeology

Many late prehistoric objects have been found in the area. Late Bronze Age gold ornaments including armlets (Anon 1926; Jessop 1970, 135-6) and over 300 pre-Roman Iron Age coins have been found on the shore (Jessop 1970, 23) and storms often reveal further material on the beach (Cunliffe 1975, 92). The quantity of coin finds led to speculation that an Iron Age mint was operated at Selsey Bill, the site of which was subsequently eroded or drowned by the encroaching sea (Jessop 1970, 144).

Early Iron Age pottery found on Selsey included Belgic pedestal urns: these are important indicators of the orientation and scale of the area's continental connections as they have not yet been recorded elsewhere in west Sussex (White 1934, 41). Belgic influences are similarly represented by finds of coins of Commius, Tincommius, Verica and Eppillus, many of which were found on the beach. These included a gold coin of Cunobelin and a bronze coin of Cnidos from the second century BC. In addition, extended contacts with the Mediterranean are suggested by Greek vases that were found in east cliff and may have reached Selsey in the early Iron Age (*ibid*).

Hawkes (in White 1934) compared the Iron Age pottery from Selsey with continental examples. He suggested that the Selsey finds were wheel-made pottery (dated to *c*.50 BC – AD 50) and the results of Belgic immigrants blending their technique with the established native traditions. Parallels were identified throughout the central southern sector at Hengistbury Head, St Catherine's Hill (Hampshire), Silchester and Casterley Camp (*ibid*).

The potential significance of the site was enhanced by the suggestion that the Roman road, Stane Street, had a pre-Roman origin and served an Iron Age settlement located in the Selsey plain (Jessop 1970, 168-9). The entire peninsula was protected by a series of earthwork dykes that were constructed across the gravel terraces; the dykes 'protected' or at least demarcated the area between the Lavant and Bosham Harbour (Bradley 1971b). The Roman developments of Fishbourne and Chichester[56] were built within the northern part of the demarcated territory (Cunliffe 1975, 92-3).

Comments

Evidence of the Iron Age island of Selsey suggests it was the location of manufacturing processes (salt production, coin minting, etc.). It has been suggested (Chapter Four) that coastal nodes were involved in manufacturing, as well as operating coastal facilities within the maritime network. The presence of continental imports on this former island, and its strategic location on the south coast further suggest Selsey as a 'probable' coastal node.

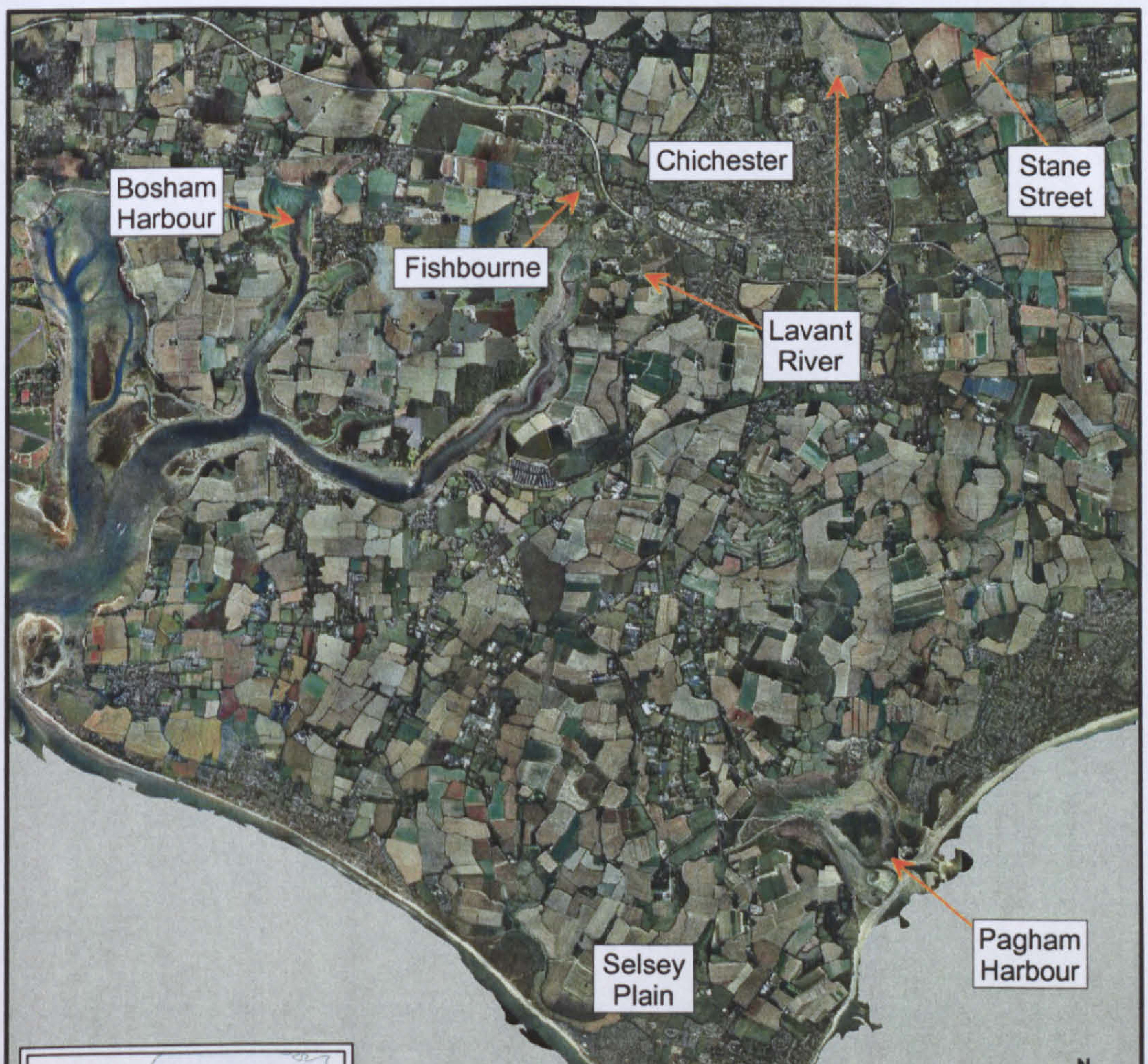


Figure 88: Aerial photograph of Selsey and Pagham showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

[56] It was suggested that Chichester was occupied when sea-level rise and flooding curtailed the use of Selsey, and that it took over the role and functions of the former island site (Jessop 1970, 179).

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
11	Selsey and Pagham	x	x	x	x	x	x	?	x	x				x	xx	

Conclusion

'Probable' site

Hayling Island (Site 12)

Location

OS NGR: 472500 101500
Havant District, Hampshire

Physical setting

Hayling Island sits between Langstone and Chichester Harbours in the extreme east of Hampshire. It is a low lying landmass of *c.*12,000 ha (above HWM), surrounded on three sides by mudflats and edged by the sandy beach of Hayling Bay in the south. In modern times the island became separated from the mainland by a 600 m expanse of low tide muds. Langstone Channel runs to the west of the island, and Emsworth Channel to the east; both flow into the Solent. The island is generally low-lying, rising to little more than five mOD.

Figure 89: Aerial photograph of Hayling Island showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Hayling Island is well known as the site of a Roman temple (King and Soffe 1999). However, within the confines of the Roman building, evidence of an earlier Iron Age structure was revealed (HaSMR 23613). Dating from *c*.50 BC to the mid-first century AD, this was a circular building, probably also used for ritual purposes. Associated with the Iron Age building were finds and other features (hearths, pits, and post-holes). Beneath the courtyard of the Roman temple were Iron Age timber-fenced enclosures (HaSMR 23617). Finds at that site included imported Roman items of the first century BC (HaSMR 23614). King and Soffe (1999) reviewed the votive offerings that included currency bars, horse and vehicle trappings, spear heads and fibulae (all metal items), as well as Roman coins of the mid-late first century BC that are considered unusual finds from that time in Britain (Haselgrove 1987, 129-30; Briggs et al. 1993, 35-41; King and Soffe 1999). In addition, finds of Iron Age pottery, briquetage and burnt flint "pot-boilers" were recovered from the site of the former North Hayling Railway station (HaSMR 23531) and Cunliffe (1975, 279) suggested that salt production sites would have operated on the island at least as early as the first century AD. Four hearths, which have been dated to the Iron Age, were recorded eroding out of a low cliff opposite Verner Common on the east side of the island (HaSMR 23519, 23520, 23521 and 23522). Also near the eastern shore (currently *c*.250 m from the HWM) is the circular univallate 'hillfort' of Tournerbury. The encircling bank is still visible (rising to approximately one metre in height in places) and encloses *c*.3.44 ha in the marshy coastal zone (HaSMR 23329). Earlier maritime use of the island is suggested by a late Bronze Age timber structure, interpreted as a wharf (Williams and Soffe 1987). An oak pile and timber wattles were recovered from just below HWM at the north of the island and radiocarbon dated to 900 BC +/- 100 (HAR-8375) (*ibid*).

Comments

The location of Hayling Island matches some of the physical traits required for a node site. Iron Age use of the island is indicated by the occupation of Tournerbury 'hillfort', hearths near Verner Common and the pre-Roman origin of the 'temple' site. The antiquity of the island's use by marine traffic is implied by the Bronze Age timber wharf. However, the evidence is not sufficient to confirm nodal activity so this site is classified as a 'potential' coastal node.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
12	Hayling Island			x	x	x	x		?	x		x		?	x	

Conclusion

'Potential' site

Isle of Wight (Site 13)

Location

OS NGR: 450000, 087000
Isle of Wight, Hampshire

Physical setting

The Isle of Wight lies three kilometres south of the British mainland, separated by the Solent. The island is lozenge-shaped, *c.*37 km east – west and *c.*22.5 km north – south. Its coast is generally cliff-lined with small, sandy coves or sheltered, rocky-backed bays (for example, Freshwater Bay, Whitecliff and Bembridge) which offer shelter to small boats, and numerous creeks and inlets which break the cliff line. The main river, the Medina, has a tidal reach of more than eight kilometres and flows south - north to the sea at Cowes. From the coast, the land rises to the highest point on the island at Brighstone Down (214 mOD). A band of chalk runs east – west through the centre of the island from Culver Cliff to the Needles, dividing the Palaeogene clays and sands in the north from the Cretaceous gault and greensand in the south.

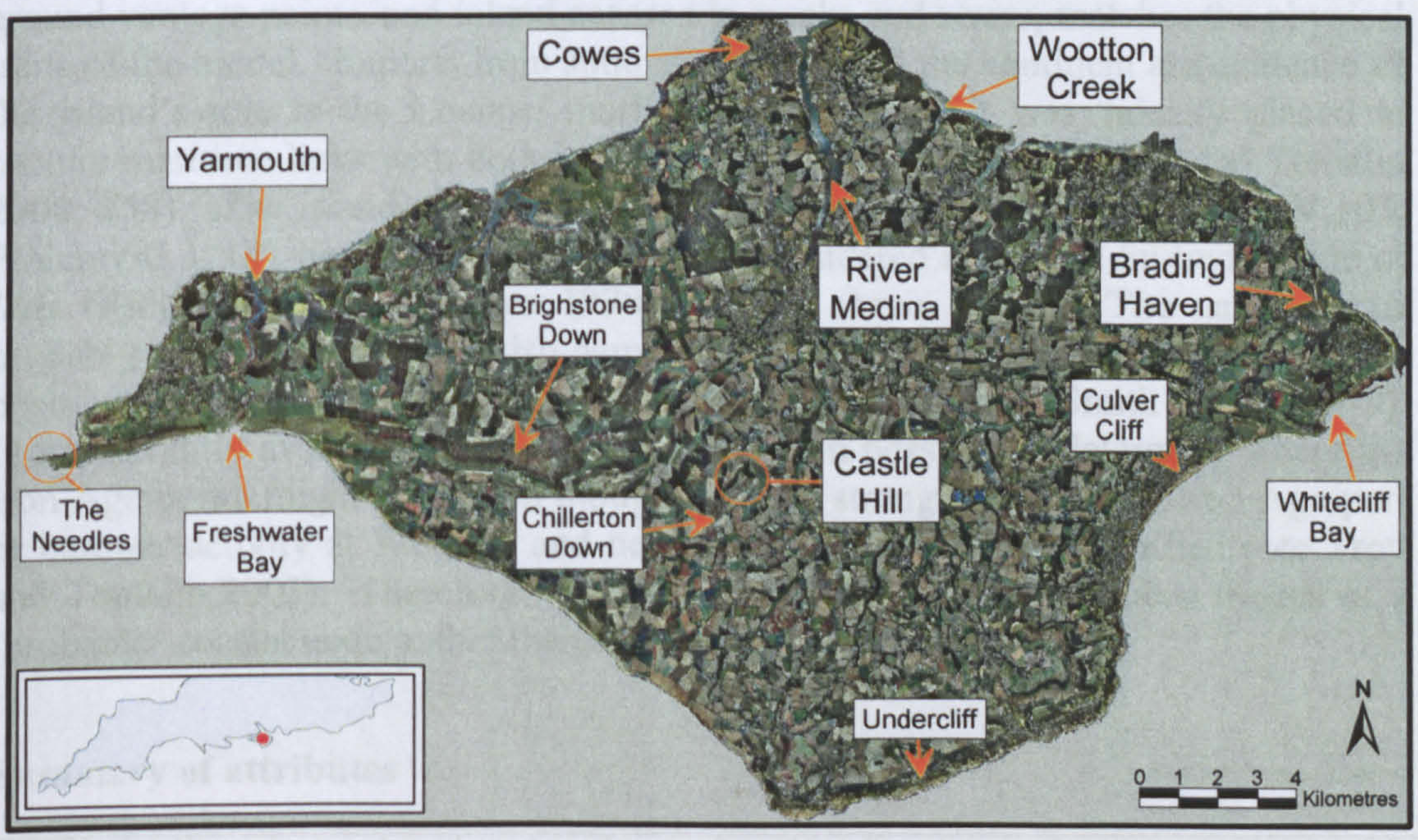


Figure 90: Aerial photograph of the Isle of Wight showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

The pre-Roman archaeological background of the island has, until recently, been mainly compiled from the evidence of stray finds. More recently, archaeological investigation, especially of the coastal zone, has begun to provide more information relating to later prehistoric activity (for example, Loader et al. 1997; Trott 1999). Timber mooring structures and beaching hards of consolidated ground to accommodate vessels in the Iron Age have been reported at Wootton Creek (Loader et al. 1997; Tomalin 1998).

A wide range of imported material, including pottery, shale and coins from the area of the Durotriges, Armorican ceramic, Italian finewares and early amphorae are recorded on the Isle of Wight SMR. These show particular concentrations in their distributions on the south coast (at Undercliff where Iron Age currency bars were also found in the late nineteenth century (Westropp 1881)), in the north-west (in the area of Yarmouth), and the north-east (at Wootton and Bembridge) (see also Figure 15).

At Brading Haven (also known as Bembridge Harbour), an Iron Age HGE has recently been identified overlooking the coast and the seaward approaches (Trott forthcoming).

The promontory fort of 'Five Barrows' on Chillerton Down overlooks the tidal extent of the river Medina. On the basis of finds from the hillfort interior, it has been dated to the Iron Age (IoW SMR).

Comments

The location of the island, mid-way along the English Channel, places it at a strategic position in the area where Channel crossings could be made within daylight hours by Iron Age vessels. The topography of the island, with sheltered coves, high ground vantage points, and inland access via creeks and rivers, matches the physical traits of the model. Imports from southern Britain and the continent are evidence of the island's role in the Channel maritime network and it was "ideally placed to nurture maritime links with both local and continental markets" (Trott and Tomalin 2003, 158). The island was referred to as *Vectis* in classical texts (Pliny IV.103; Ptolemy II.3, 14), and some authorities have considered it was the tin trading site of *Ictis* (Ridgeway 1924; Hawkes 1978; and see Davis 1997). The name *Vectis* probably derived from the British name **Uexta*, possibly ultimately referring to the position of the island "in the fork of the Solent" (Rivet and Smith 1979, 488-9). From currently available evidence, it has not been possible to determine where the Iron Age port/s might have been though recently strong indicators of Iron Age port or harbour activity at Wootton and near Yarmouth have been identified (see Trott and Tomalin 2003). Therefore, at this stage, the island itself has been treated as a 'probable' coastal node, rather than any specific site within it.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
13	Isle of Wight	x	x	x	x	x	x	?	?	x	x	?	x	?	x	2

Conclusion

'Probable' site

Hamble Common, Southampton Water (Site 14)

Location

OS NGR: 448000 106250
Hamble-le-Rice parish, Hampshire

Physical setting

Hamble Common occupies a low-lying peninsula (less than 5 m OD) at the point where the river Hamble joins Southampton Water, 2.5 km from the confluence of Southampton Water with the Solent. The Hamble has an extensive reach of *c.*20 km inland to the north-east. Southampton Water, like Poole Harbour, benefits from a double tide, increasing the frequency of tidal access for waterborne vessels.

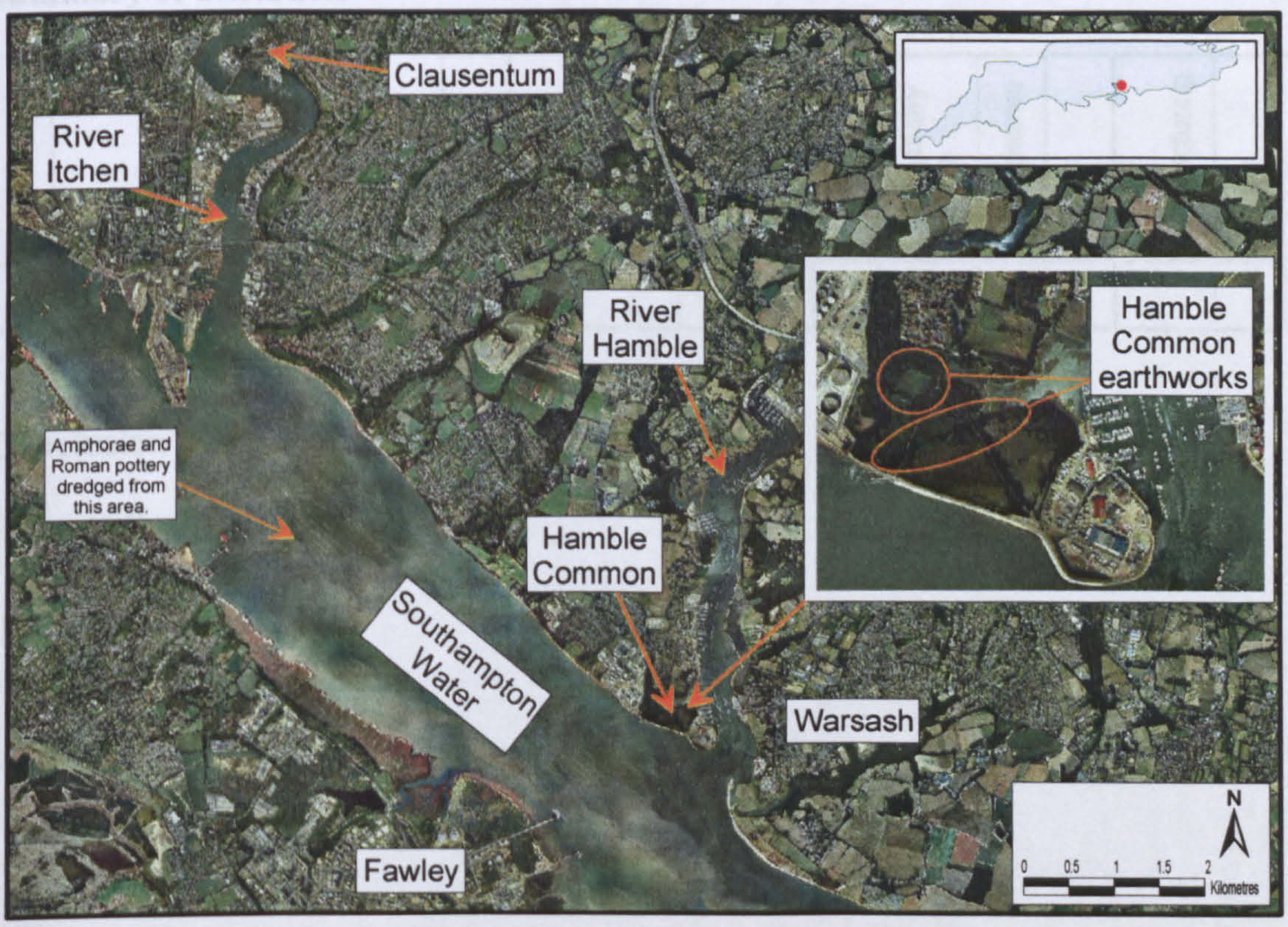


Figure 91: Aerial photograph of Hamble Common showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Linear earthworks on Hamble Common (HaSMR 25801) isolate a low marshy promontory, similar in situation to the sites at Hengistbury Head and Exbury. Other possible earthwork features can be seen eroding out of the Hamble Common area (HaSMR 39106). The area also has a group of undated salterns (HaSMR 35328).

Clausentum, at the head of Southampton Water was a Roman port that probably served the town of *Venta Belgarum* (Winchester) (Morey 1966, 25). It was located on a peninsula in a loop of the river Itchen (Williamson 1959, 48).

Amphorae and Roman pottery have been dredged from Southampton Water (general location 443000 108000) (HaSMR 22084).

Comments

The location of the Hamble Common earthworks, isolating the promontory at the confluence of two major waterways, conforms with the physical traits of the nodal model. However, the current lack of confirmed Iron Age material means that at present it is classified as a 'potential' rather than a 'probable' coastal node.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
14	Hamble Common	x	x		x	x	x		x		x	x				2

Conclusion

'Potential' site

Beaulieu River (Site 15)

Location

OS NGR: 441900 098750
Exbury and Lepe, and Beaulieu parishes, Hampshire

Physical setting

The Beaulieu River runs south for *c*.23 km from Longdown, through the eastern heathlands of the New Forest, to flow into the Solent near Lepe. At Lepe, which sits directly on the Solent coast, there is a low shingle beach backed by the Dark Water stream. Beaulieu is at the tidal extent of the river, *c*.6.5 km inland. The mouth of the river is now heavily silted. Approximately 1.5 km from its mouth, the river turns from north-east to south-east at the Lower Exbury promontory. The surrounding land is open and low-lying.

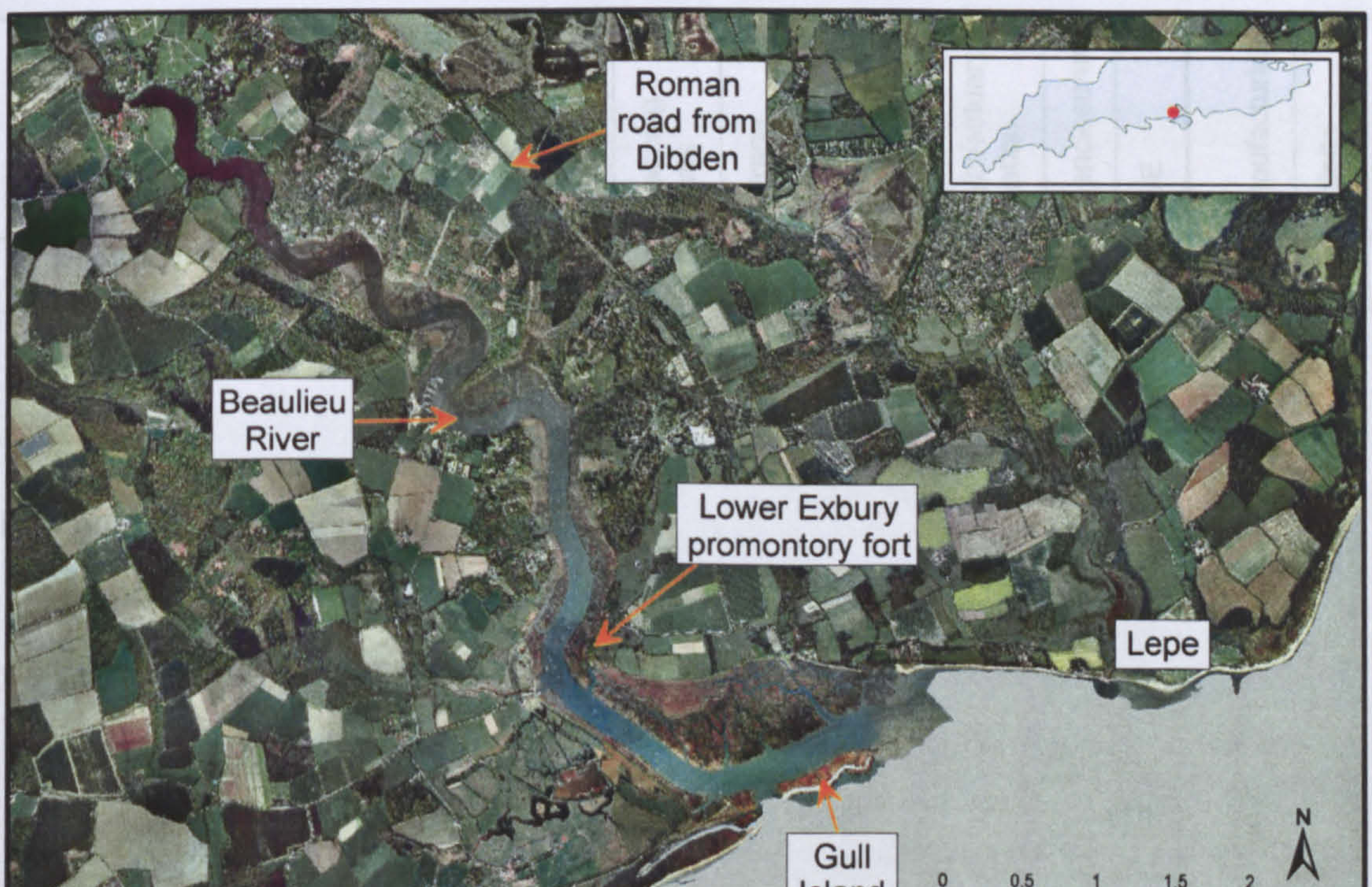


Figure 92: Aerial photograph of Beaulieu River showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

At Lepe an Iron Age gold stater (Westerham type) was recovered from the foreshore (HaSMR 22337). Later features include a Roman road that leads from Dibden to Lepe (HaSMR 29696) where two first century AD Roman bronze coins were recovered (HaSMR 29935). In addition, abraded pottery from the first and second centuries AD has been recovered from Lepe beach (HaSMR 29937).

A promontory fort occupies the Lower Exbury promontory on the east bank of the Beaulieu River (HaSMR 21974; Sumner 1917, 119). Its location at the first turn in the river from the coast provides views for *c.*1.5 km up stream, and of the lower river reaches to the coast. No investigations or finds have been recorded at the site.

Comments

The location of the Lower Exbury hillfort, on the banks of a sheltered river, with clear access and extensive inland reach, matches the physical traits of the nodal model. However, as there is a lack of evidence relating to the use of the area, it is suggested as a 'potential' nodal site.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
15	Beaulieu River	x	x	x	x		x		?		x	x	x		xx	3

Conclusion

'Potential' site

Lymington (Site 16)

Location

OS NGR: 433000 095500
Lymington and Pennington Parish, Hampshire

Physical setting

Lymington is a small coastal town now clustered on the west of the Lymington River that runs *c.*15 km from the inner heath of the New Forest to exit into the Solent opposite Yarmouth on the Isle of Wight. The point where the river meets the Solent is characterised by sand and mud flats that are edged by marshlands. The narrow plain of the Lymington river lies in a shallow valley. The river has deposited much silt at its mouth so that the entrance to the river channel is now one kilometre from the HWM at the shore. The coast and river mouth are sheltered by the extended gravel ridge of Hurst Spit and the Isle of Wight which lies *c.* five kilometres south across the Solent.

Figure 93: Aerial photograph of Lymington River showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Buckland Rings multivallate hillfort lies *c.*600 m west of the river and three kilometres north of the coast (HaSMR 21843; Hawkes 1936). It encloses *c.*3.2 ha and was partially excavated by Hawkes in 1935 (Hawkes 1936). Just 0.5 km to the east is Ampress Hole mulitvallate hillfort which encloses *c*.2.4 ha with a double bank and ditch circuit (HaSMR 21841; Smith 1999). Ampress Hole was the subject of a small excavation of its defences, conducted by Aberg in 1959 (not published, see HaSMR 21841). Both hillforts have been dated to the Iron Age.

Finds from Lymington Marshes include a Late Bronze Age bowl (HaSMR 42538), and a hoard of socketed axes were found near the town in 1779 (since lost) (HaSMR 39881).

Comments

The location of Lymington, at the west of the sheltered Solent, would make a useful haven point for coastal shipping. The river's inland reach, and the fact that it is overlooked by two Iron Age hillforts, suggest the area as a 'potential' coastal node.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
16	Lymington	x			x	x	x				x		x			

Conclusion

'Potential' site

Hengistbury Head (Site 17)

Location

OS NGR: 417250 090880
Bournemouth Unitary Authority, Dorset

Physical setting

The promontory known as Hengistbury Head consists of mainly low-lying flats from which rises the only local high ground of Warren Hill (which rises to *c*.36 mOD). It has a complex geological stratigraphy of sands and clays of the Bracklesham series; the high ground of Warren Hill is capped with Pleistocene gravels. The headland forms the southern limit of Christchurch Harbour into which flow the Rivers Avon and Stour. The harbour is shallow but well sheltered and prominently located mid-way along the English Channel. The headland has changed dramatically over time due to coastal erosion, exacerbated by nineteenth century quarrying for ironstone that still outcrops as doggers in the cliff face. The 'defensive' Double Dykes – a twin Iron Age bank and ditch - isolates over 1.5 km of headland and is believed to delimit the coastal part of the promontory covering *c*.120 ha (Cunliffe 1997, 229). Cunliffe's excavations revealed an ancient shoreline with a high tide limit of *c*.0.6 m above the present equivalent. Some Iron Age structures encroached into this area, a fact interpreted by Cunliffe as suggesting the high tide level fell during that period (Cunliffe 1987, 78).

Archaeology

The Hengistbury Head promontory contains archaeological sites ranging from the Palaeolithic period through to medieval times (DoSMR). There is evidence of fairly continuous occupation from the late Bronze Age through to the Roman period.

In 1911-12 J P Bushe-Fox sample investigated *c*.42 acres (*c*.17 ha) in advance of proposed development (which was not completed) (Bushe-Fox 1915). His investigation included trenches excavated in Barnfield (see Figure 18). From these were recovered Iron Age and Bronze Age pottery, worked flints, and a burnt layer just within the Double Dykes earthwork, close to the cliff edge that was judged to be a cremation site (Bushe-Fox 1915, 20). Limited excavation was also conducted by H St George Gray 1919-24 and David Peacock 1970 and 1971 (both summarised in Cunliffe 1987). A study of Palaeolithic and Mesolithic sites and material from Warren Hill was conducted by Nick Barton (1992) following earlier work by Angela Mace (1959).

Professor Barry Cunliffe undertook the most recent excavation between 1979 and 1985 (Cunliffe 1987). This concentrated on the 'trading settlement' in the lee of Warren Hill (see Figure 18) but the overall area of the settlement was not determined. Cunliffe estimated the later Iron Age – Romano-British occupation covered an area of 75,000 square meters, of which he excavated a 4% sample (3,000 square metres) (Cunliffe 1987, 75).

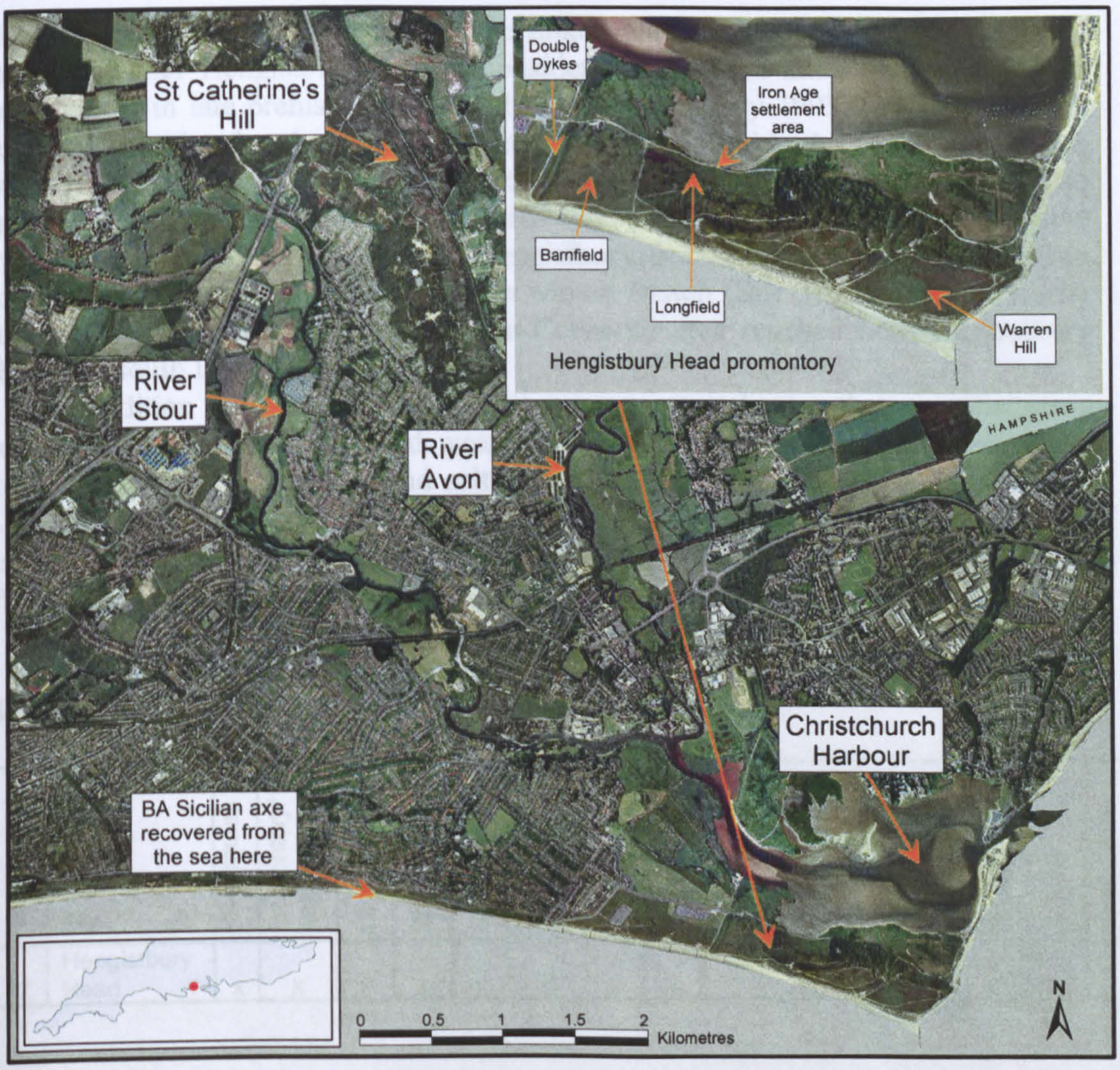


Figure 94: Aerial photograph of Hengistbury Head showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Comments

The promontory of Hengistbury Head and sheltered waters of Christchurch Harbour conform to the characteristics of the physical traits model. Warren Hill shelters both the Iron Age settlement area and the harbour, and is an identifiable landmark from the sea. The rivers Avon and Stour, which flow into Christchurch Harbour, provide access inland to west Dorset and Wiltshire. Excavations at Hengistbury in the twentieth century revealed evidence that the headland and harbour had been used as a port and settlement in the late Iron Age and that it operated within international maritime networks. Material was recovered which had originated in France, Italy and Mediterranean areas, as well as from other regions within southern Britain.

The headland has been interpreted as a major trading site on the fringe of Durotrigian territory (Bushe-Fox 1915; Cunliffe 1987) where land and river routes through southern Britain linked with sea routes along and across the Channel from Brittany and the Atlantic route from Iberia and the Mediterranean (Hawkes 1938a, 226). Strabo recorded that the Veneti of north-west France traded with southern England via a major port (*Geography* IV.4.1). Mays (1981) argued that the port was

Hengistbury Head. Hengistbury can be linked with the Breton port site of Alet - indeed the Alet–Hengistbury route is considered one of the main trade links across the Channel in late prehistory (Calder 1986, 67; de Jersey 1993). Both are small, defendable peninsulas sheltering an accessible harbour and both offer advantageous water routes inland (Alet is at the mouth of the Rance estuary). Hengistbury also gathered goods from south and south-west Britain. Dobunnic goods were transported south along the Stour to Hengistbury from where they were coasted to south-west regions via port sites such as Mount Batten (Site 32). In this way, iron currency bars originating in the Severn-Cotswold area reached both Hengistbury Head and south Devon (Fox 1964, 131).

In addition to trade, evidence from excavation indicates that manufacturing activity at Hengistbury included weaving textiles, shale working, glass working, lithic working, coin minting, and salt working (Cunliffe 1987, 176; Wells 1995a, 216). In particular, excavation revealed a "remarkably advanced" metal industry – especially copper and extraction of silver from argentiferous copper (Cunliffe 1975, 99).

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
17	Hengistbury Head	x	x	x	x	x	x	x	x	?[57]	x		x	x	xx	1

Conclusion

'Definite' site
This site is discussed in detail in Chapter Six.

[57] Warren Hill and the promontory area may have been perceived as an island due to its isolation by the Double Dykes earthworks.

Poole Harbour (Site 18)

Location

OS NGR: 403700 086800 (entrance)
Fringed by various parishes and Poole Unitary Authority, Dorset

Physical setting

Poole Harbour is one of the largest yet shallowest natural harbours of the world, with a surface area of more than 3700 ha. It is a wide, flooded valley basin (ria) situated roughly midway along the northern shore of the English Channel and is the last "lagoon port" for vessels travelling westwards (Williamson 1959, 132). The harbour is fed by the rivers Frome and Piddle, and the Sherford river runs into one of the two small northern bays, Lytchett Bay (the other is Holes Bay). There are five permanent islands in the harbour. The geology is predominantly sand of the Bracklesham Group, with areas of Poole Formation Parkstone clay (Bristow et al. 1991). There are also thin spreads of Pleistocene gravels.

The variety of geology, pedology, and land type around Poole Harbour allowed a wide range of flora and fauna to develop, much of it useful as raw materials (Syratt 1984, 39). Resources such as clays, reeds, and food supplies were useful to the inhabitants of, and visitors to, the harbour. This has made it an important area for people to visit and inhabit for many millennia.

In the present day, the area around the modern harbour varies in character from the resort of Sandbanks and commercial district of Poole in the north, to less densely developed areas around the south of the harbour which is currently a zone of typical Dorset heathland.

Archaeology

The archaeological importance and potential of Poole Harbour can be judged from a recent survey of England's coastal archaeology for English Heritage which concluded that it "deserves multi-period assessment" (Fulford and Champion 1997, 232).

The area has yielded archaeological evidence relating to all periods from the Palaeolithic to modern times. Some of the key studies include work at Bestwall (Ladle 1996; 2000), Wareham (Hinton and Hodges 1980), and Wytch Farm (Cox and Hearne, 1991). Period studies include those of the Iron Age (Calkin 1949) and Romano-British times (Woodward 1987a; 1987b). Research based in neighbouring areas supports wider links with Poole Harbour, for example, Hengistbury Head to the east (Cunliffe 1987), and Maiden Castle via Weymouth in the west (Sharples 1991a; 1991b).

The harbour itself has a long history associated with mineral, salt, and clay extraction. Beyond the immediate southern fringe of the harbour is the 'Isle' of Purbeck with a range of accessible mineral resources including limestone, shale, Purbeck 'marble', chalk, clays, and salt. These resources led to the area emerging as an important late prehistoric and Romano-British manufacturing centre: shale, clay, and salt were increasingly exploited through the Iron Age (Hearne and Cox 1994, 102).

Within the south of the harbour, previous excavation uncovered evidence of Iron Age activity at Ower Peninsula (Woodward 1987a; Cox and Hearne 1991), Green Island (Farrar 1964; 1967; Bromby 1969) and Furzey Island (Cox 1985; 1988). At Ower, a large late Iron Age/Romano-British settlement and 'industrial' site was located (see Cox and Hearne 1991). From that area an earlier construction, the Green Island 'causeway', ran out to South Deep. This is a substantial feature built of stone and timber. Survey of the 'causeway' has revealed that it is in fact two contemporary structures of mid-late Iron Age date which have been interpreted as 'jetties' (Markey et al. 2002).

Investigations on Green Island produced evidence of Iron Age/Romano-British activity including shale-working, salt production, and pottery production. (Farrar 1977) as well as imported pottery which suggests links with wider trading networks within Britain and across the Channel. Similar late Iron Age evidence has been recovered from Furzey Island (Cox 1985; 1988) and it is suggested that, until the early Roman period, Green and Furzey Islands were one landmass (Cox and Hearne 1991, Figure 91; and see section 7.4.2), referred to in this study as 'South Island'.

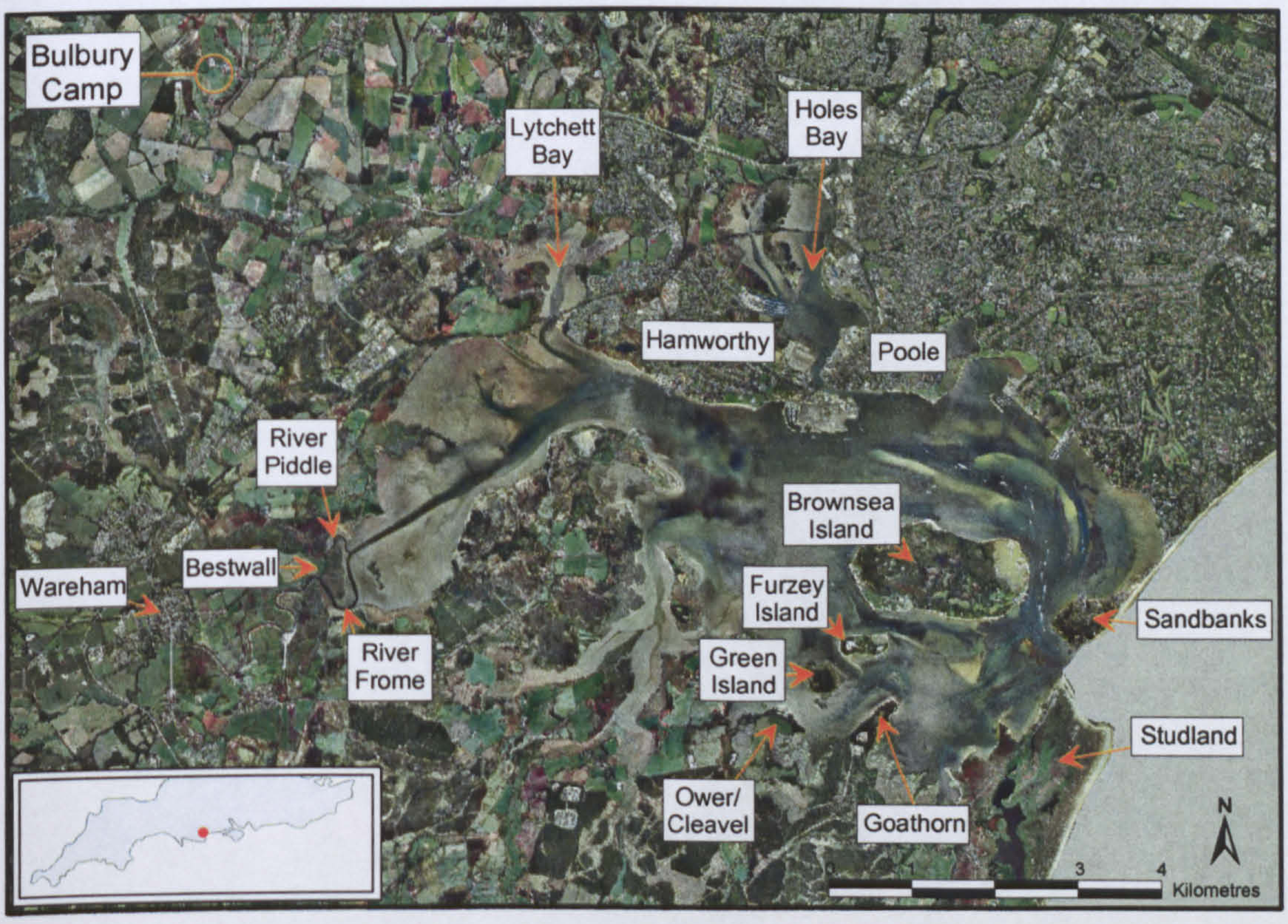


Figure 95: Aerial photograph of Poole Harbour showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).
NB a more detailed view of southern Poole Harbour is shown in Figure 31.

Comments

The physical characteristics of Poole Harbour conform to the traits identified in the 'coastal node' model. The fact that many of the items recovered from in and around the harbour were of continental origin suggests that the southern area of Poole

Harbour may well have been involved in cross-Channel trade in later prehistory. If so, this would make Poole Harbour one of the earliest cross-Channel trading ports - a function that persists to the present day, over 2000 years later.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
18	Poole Harbour	x			x	x	x	x	x	x	x	x	x	x	xx	1/2

Conclusion

'Probable' site

Kimmeridge (Site 19)

Location

OS NGR: 390600 079000
Steeple and Kimmeridge parishes, Dorset

Physical setting

The clay cliffs around the bay are formed of alternating bands of shale and stone above a 'beach' of shale pebbles and rock ledges (Davies 1956, 95). The bituminous oil shale was formed from the anaerobic decay of organic matter under pressure (*ibid*, 43) and served as a source of fuel (it burnt like coal) and a raw material for jewellery production in later prehistory and the Romano-British period (see Calkin 1955). The bay itself is hazardous for shipping at low tides due to the rock ledges that extend out from the beach. However, high water approaches into the sheltered harbour are easily undertaken. A freshwater stream cuts down to the beach from a source approximately one kilometre distant.

Figure 96: Aerial photograph of Kimmeridge showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Eldon Seat (Cunliffe 1963; 1964) and Rope Lake Hole (Woodward 1987b), both Iron Age occupation and shale working sites, are located approximately 3.0 km and 2.25 km to the east respectively.

Comments

Shale-cutting activity at Kimmeridge in the Iron Age produced the raw material for the armlet production industry in Poole Harbour and sites throughout Purbeck. The cut shale was transported *c.*25 km, probably by sea, to sites in the harbour such as Green Island where it was fashioned into armlets and possibly other products. Despite the low-tide rock hazards within the bay, it offers protected anchorages and, as it is known that shale was exported from Kimmeridge, it is likely that the sheltered cove would have received maritime traffic as part of the wider coastal network.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
19	Kimmeridge				x	x								x		3

Conclusion

'Potential' site

Bindon Hill (Site 20)

Location

OS NGR: 382900 080300
West Lulworth Parish, Dorset

Physical setting

Bindon Hill rises above the northern shore of Lulworth Cove and runs east to Mupe Bay and Arish Mell. Lulworth Cove is the only natural harbour with all-weather safe moorings for small craft along a 22 km stretch of Dorset coast. The north of the cove rises very steeply to a crest running the length of Bindon Hill at a maximum height of 168 mOD. The ellipsoid cove covers *c*.305 m north – south, with an entrance *c*.122 m wide (Davies 1956, 86). A firm, shingle beach runs around the northern shore. All around the cove, cliffs rise steeply, affording considerable shelter in the natural harbour.

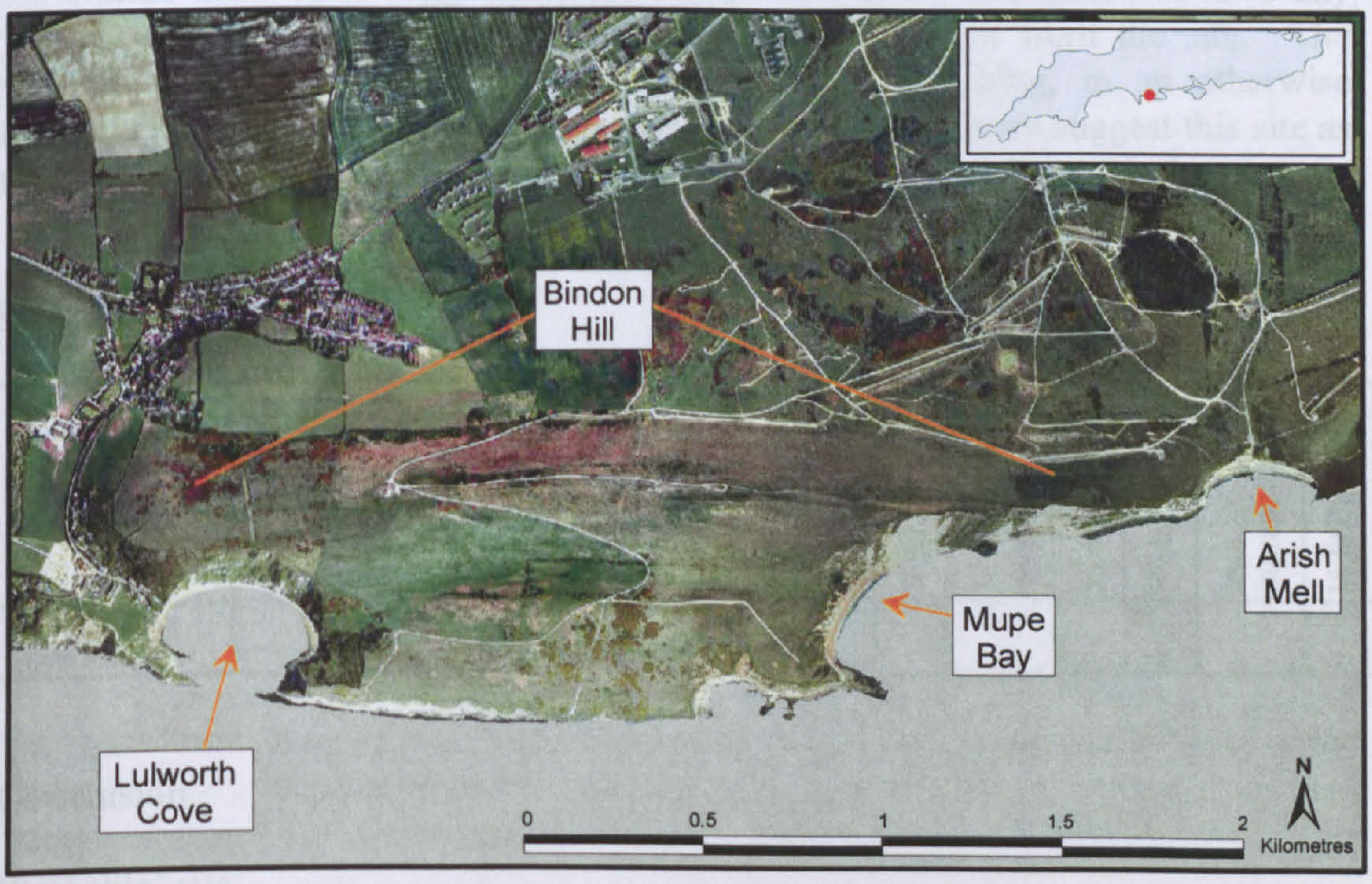


Figure 97: Aerial photograph of Bindon Hill showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Linear earthworks isolate approximately 81 ha of the ridge of Bindon Hill above Lulworth Cove (see 'Comment' below).

Comments

The site is a mainly univallate hillfort with one surviving entrance on the north side that is still approached by an ancient track known locally as 'the Roman Road'. Wheeler excavated here in 1950 and found the width of entrance and track to be wider than usual "perhaps designed for the easy admission of cattle" (Wheeler 1953, 7). There is also an additional cross-dyke earthwork cutting off 200 acres (81 ha) of the west end of the ridge and harbour. This is unfinished and the method of layout and construction is still visible - built using the gang system (as at Ladle Hill - see Piggott 1931).

Wheeler's section through the rampart to the east of the entrance revealed over 200 British IA-A sherds. No haematite coated wares were recovered despite these being prolific at the contemporary sites of Maiden Castle and Kimmeridge. It was therefore concluded that Bindon is "chronologically unanchored within the earlier part of the Iron Age" (Wheeler 1953, 10).

Wheeler interpreted the site as an Iron Age beach-head or transit camp where tribal unit/s, during a 'period of movement', could wait after landing before infiltrating the hinterland. The rise of ground from beach to hill top is considerably steep, but paths ascending the shallower western edge would have been more suitable for carrying loads to the enclosed area of the summit.

Unlike most other suggested node locations, Bindon Hill does not have any riverine associations. However, overland tracks are known from the site. The position of the cove, offering safe anchorages and beaching, in an otherwise inhospitable stretch of coast, and the 'transit camp' hillfort above suggest this site as a 'probable' Iron Age coastal node.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
20	Bindon Hill		x	x	x	x	x	?	x				x		x	

Conclusion

'Probable' site

Portland (Site 21)

Location and plan

OS NGR: 369000 071000
Portland parish, Dorset

Physical setting

The 'Isle of Portland' lies mid-way along the southern coast of England, on the coastal fringe of the Durotriges' territory, serving as a key navigational feature for vessels in the English Channel. It is a natural landmark at which the coasting element of voyages would cease and vessels head out into open water (McGrail 1995a, 276). Portland is the closest English port to the Channel Islands (Rees 1972, 329), a significant point in the routes for cross-Channel trade during later prehistory. It lies opposite the French port of Cherbourg, regarded as the 'natural port of entry' for vessels from central southern England (Coles 1968, 56-7).

Portland is now 6.5 km long and 2.5 km across its widest point, with the highest point at the summit of The Verne hill, *c.*150 mOD. From here is afforded an unrestricted view over the water that on a clear day can see half-way across the English Channel, westwards to Start Point near Kingsbridge, Devon, and to St Alban's Head in the east. The natural shingle bank of Chesil Beach connects Portland to the mainland, enclosing the Fleet 'lagoon' behind it.

The roughly triangular landmass covers *c.*3000 acres (*c.*1200 ha) and is composed of Jurassic rocks that dip gently from the highest point in the north to the 'Bill' in the south. Portland sands and stones overlie Kimmeridge Clay in the north and Lower Purbeck Beds in the south (RCHME 1970, 246-7). The east, west, and southern fringes of Portland are edged by steep cliffs that offer a measure of security; prior to 1839, when a bridge was constructed at Smallmouth, access from the north entailed a 17 km walk along the shingle of Chesil Bank, or fording/boating across the shallows. A 'half-moon' crescent earthwork (undated) was noted by Hutchins (1803 II, 354) at Smallmouth. This was possibly to defend the narrow water crossing at that point.

Portland shelters a harbour area that is fringed to the north by the sand beach of Weymouth and the narrow mouth of the river Wey. This rises just 6.5 km to the north, between Weymouth and Dorchester. The Roman harbour at Radipole Lake was located in a flooded basin of the Wey behind the area of the current town of Weymouth.

Quarrying for Portland stone has been extensive, dramatically altering the natural topography and causing immeasurable damage and loss to the archaeology of Portland.

Archaeology

To the north of Portland Harbour is the port town of Weymouth where the narrow mouth of the river Wey provides access from the sheltered anchorage of Portland Harbour (Williamson 1959, 132). To the north of Weymouth, the massive chalk ridgeway rises sharply to heights in excess of 200 mOD. It is densely scattered with Bronze Age barrows and the area saw much Roman activity including the Romano-Celtic temple at Jordan Hill (Drew 1931; 1932) and the port at Radipole (Farrar 1951, 94-9). Early Iron Age remains have also been uncovered in the vicinity of Radipole Lake including haematite coated pottery and burnished wares (Morris 1974), and a pre-Roman Durotrigian silver coin was recovered following a landslip at Furzey Cliff (OS NGR: SY70148196) (Farrar 1962a, 112).

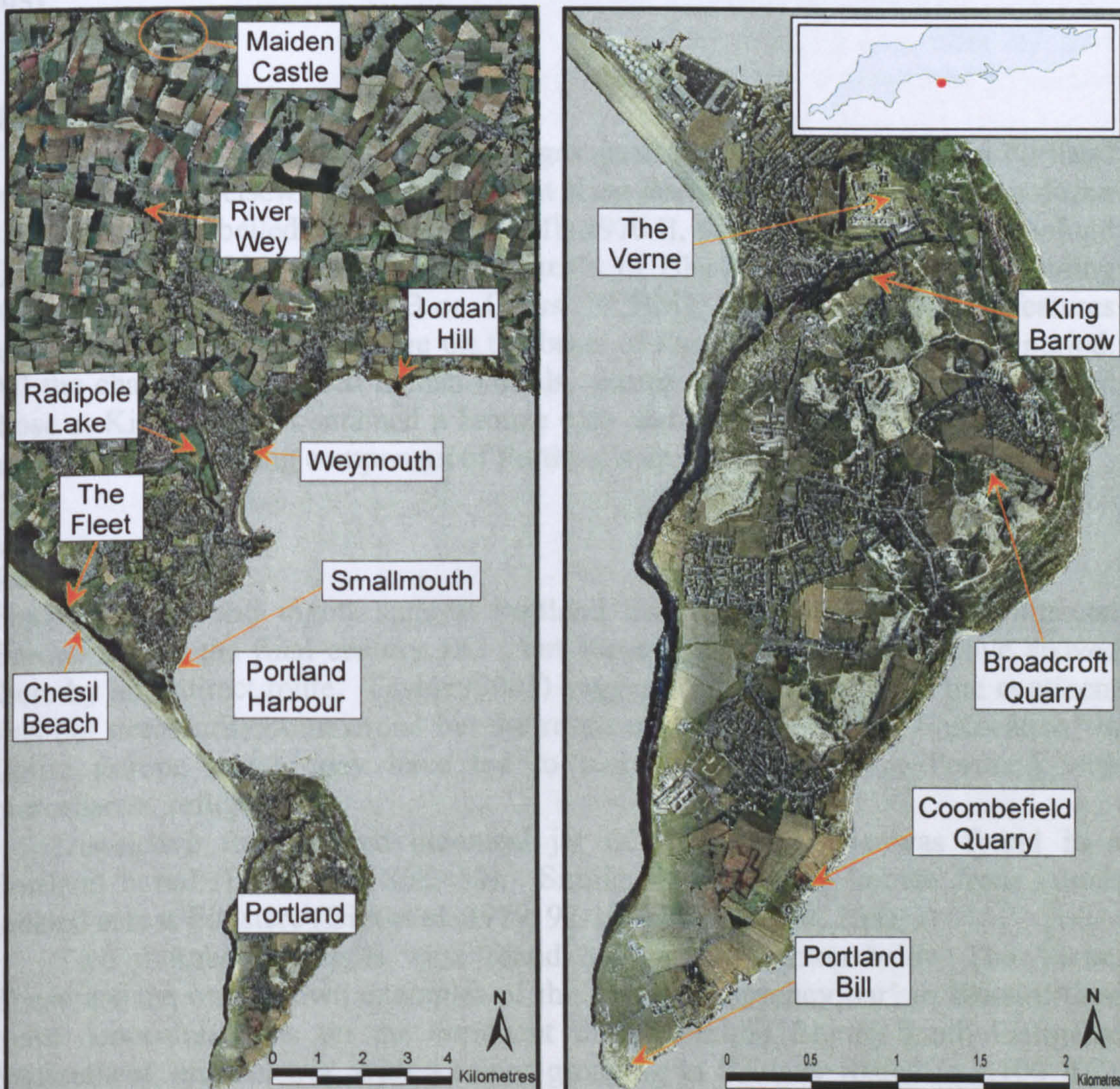


Figure 98: Aerial photograph of Portland showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

The Verne

A bi-vallate hillfort enclosed approximately one-third of an acre at the summit of The Verne before being destroyed by quarrying and the construction of a Victorian 'citadel' (now HM Prison). Its position is known from a local painting (see below), a breakwater chart (Rendell and Goode 1857), and a description and sketch by the local antiquary, Charles Warne (1872, 256). He describes it as oval and "more than 50 paces across" (and see Taylor 2001, Fig 4). Finds from the area include Romano-British inhumations, a flint axe, and "2,000 slingstones the size of cricket balls" (RCHME 1970 II, 504). The position is strategically commanding and Taylor (2001) considers it was possibly a maritime trading settlement making use of the sheltered anchorage immediately below in Portland Harbour. As at Bindon Hill, the ascent from the harbour to the site on The Verne was steep, but Taylor considered it was viable and heightened the defence and security of the site. A distinct track leading to The Verne was recorded as a pre-Roman "double fosse-way" (Heath 1933, 216). It is considered ancient although no direct connection has been proved with the hillfort there. Taylor believes it would have been used by the inhabitants as the most logical route given the constraints of the local topography (Taylor 2001, 195).

'Beehive chambers'

These stone-lined chambers are found in groups at various locations within Portland but are unknown elsewhere in Britain. At King Barrow (SY69207285) are a dozen circular stone corbelled chambers (RCHME 1970 II, 605-6). Others at Coombefield Quarries (SY689706) contained three sherds of Black Burnished Ware including two rim pieces from Iron Age-B or -C jars (RCHME 1970 II, 607). These features have been dated to the Iron Age on the basis of the pottery finds from the period. All the chambers contained human burials, animal bones, pebbles, slingstones and those at King Barrow contained a bronze coin and shale pieces. These features are an unusual and striking component of Portland's archaeology.

Relevant finds

Finds of coins and ingots suggest Portland had direct contact with continental Europe during the final century BC - but some of the material may have arrived there by an indirect route. Taylor (2001) suggested that contact with the continent was not necessarily commercial but the result of the contemporary 'dislocation' in Celtic Europe which may have led to material brought to at Portland with mercenaries, refugees, etc.

Distinctive four-handled biconical jar of Armorican type was found in a Portland burial (Buckman 1868, 50). Similar examples are known from tumuli located across Finistère (Giot et al. 1979, 92-102; Briard 1984, 253).

Two rhomboidal ingots were found on North Common below The Verne. These are the only known examples of this type of 'currency bar' in Britain; their main concentration is on the continent in the middle Rhine, South Germany, Switzerland, and Austria, with a minor grouping in Brittany (dated to *c.*100 BC). Piggott (1965, 246) considered the Portland pair were related to Venetic trade; Salter and Ehrenreich (1984, 152) saw them as evidence of cross-Channel trade in metals during the Iron Age (see also Taylor 2001).

A Celtic mirror handle was found in 1875, probably from the area of The Grove (*c.* SY700725) (Fox 1949 29; 30; RCHME 1970 II, 607). Many Iron Age and Romano-British potsherds were recovered from private gardens at Southwell (Farrar 1963, 101; RCHME 1970 II, 607-8).

Coins

Several finds of coins from Portland and its environs dated to the late Iron Age and early Roman period. Amongst these are Gallo-Belgic A types including a rare British find of an AC-1 (Haselgrove 1978, 5) and a gold AB-1 found on The Verne (Allen 1961, 149). This represents a western outlier to the main concentration in

Britain located in the south east, particularly around the River Thames (see Cunliffe 1981, 62-3). The continental and British distributions of these suggest the main axis of importation was across the Straits of Dover; they are dated to the second century and first half of the first century BC (Scheers 1977, 259, 263). Their findspots along the south coast may represent 'ports-of-call': Hastings, Seaford, Selsey, Portland, Mount Batten (Taylor 2001, 197).

Another gold Gallo-Belgic stater (F-type) was found on The Verne, attributed to the Suessiones from east of Paris, mainly based along the River Marne. The coin is dated to *c*.65-58 BC (Scheers 1970, 155-6). A further gold coin from the first century BC is probably of the Sequani (Scheers 1996, 73). A deposit of Danubian silver tetradrachms was also found on Portland (Allen 1968).

In the vicinity, further coin finds have been made along the beach areas, mainly following storms. These include two Armorican coins found on Chesil Bank - a gold stater of the Namnetes from the second half of the second century BC (de Jersey 1994, 78-9), and a stater of the Veneti which was probably in circulation *c*.150 – 75 BC (Taylor 2001, 198).

Comments

Archaeological attention to Portland in the past has been far from extensive given its unusual and strategic location - but it is perhaps this 'insularity' that discouraged investigation. More recent investigations have been hampered by the destruction wrought on the archaeological resource by centuries of extensive quarrying that led one of the most recent reports to state that "No coherent picture of Iron Age Portland is possible. The quality of the data is too poor, and scientific excavation is lacking" (Taylor 2001, 196). Most of what is known has come from finds made by quarrymen or sources not immediately classified as archaeological. One such example is the painting completed by Upham between 1802-5 of the Portland Arms public house that happens to depict the now vanished hillfort on the summit of The Verne in the background. This hillfort was recorded by Aubrey in the seventeenth century (1982, 358) and mentioned by Hutchins (1861-73 II, 817-8) and various travel guides of the eighteenth and nineteenth centuries (see Taylor 2001, 191).

However, the Mesolithic and Palaeolithic archaeology of the Isle is under review (Palmer 1965; 1985). Proposed new quarry sites are the subjects of an ongoing impact study covering 350 ha, mainly on the eastern side and southern coastal fringe. The emerging distribution map shows Bronze Age and Iron Age points of interest, particularly in the south-east corner associated with the raised beach (a designated Scheduled Ancient Monument due to its known Mesolithic archaeology) and running out to Portland Bill. At this early stage of the project, it would appear that there is a coincidence between the locations of these points and freshwater springs. A density of Iron Age finds has been recovered from the area of Broadcroft Quarry and a previously unknown early Iron Age settlement has been identified west of Grove Fields (P Cox, presentation to Dorset Coastal Forum Seminar, 28 November 2001).

In a recent study, Taylor (2001) suggested that an important hillfort settlement had been located on The Verne, protecting the major harbour in the lee of the hill. It would be an arduous climb from the harbour to the top of the hill, although a similar situation existed at Bindon Hill further east along the coast. The harbour at Portland was suitable for Iron Age vessels: McGrail (1983, 310-3) suggests six criteria for useful harbours which Taylor argues Portland satisfies "for the most part" (2001, 196).

The finds from Portland suggest it maintained contacts on wide scales – regional (material from Hengistbury Head), national (probably coming along the coast), and possibly direct international contact (coins, ingots, ceramics).

The combination of advantageous natural topography, insular security, a sheltered harbour, inland access, the proximity of Maiden Castle, the position on the along-Channel routes, evidence of possible wreck sites, and finds of imported material all suggest Portland as a 'probable' Iron Age coastal node.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
21	Portland	?	x	x	x	x		?	x	x	x		x		x	1/2

Conclusion

'Probable' site

Seaton/Axmouth (Site 22)

Location

OS NGR: 325650 089820

Seaton and Axmouth parishes, Devon

Physical setting

The Seaton valley cuts through Permian strata between hills of greensand and chalk in which chert bands, up to three metres thick, are known and visible in the coast (Edmonds et al. 1975, 68; 69)

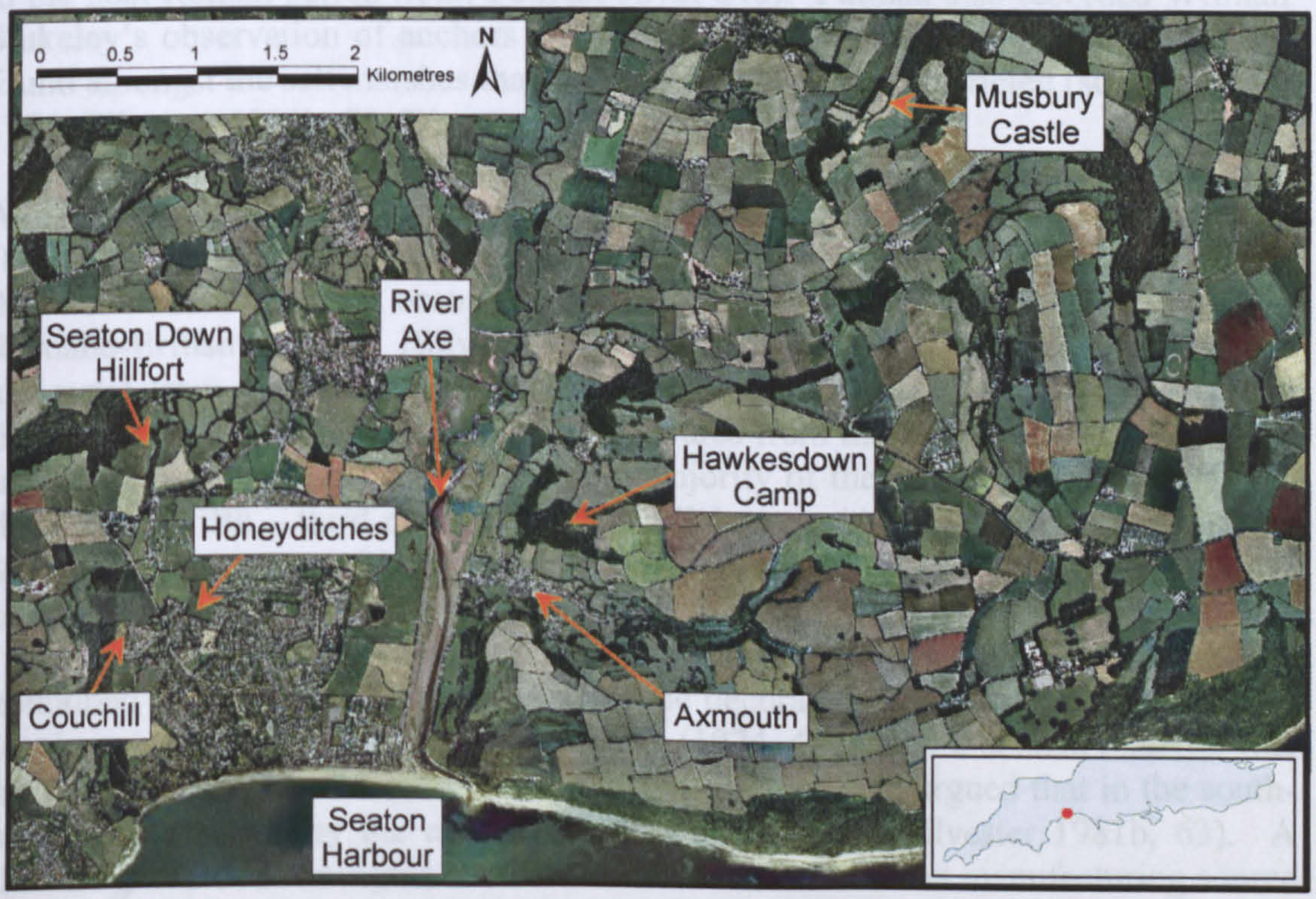


Figure 99: Aerial photograph of Seaton and Axmouth showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Late Iron Age occupation of Seaton has been recorded at the settlement and hillfort sites which are located in the lower reaches of the Axe Valley. At Honeyditches, a late Iron Age – Romano-British settlement and road have been excavated (Pollard 1972; Miles 1977a; Silvester 1981b; Holbrook 1987), and a Roman military sea-fort has been identified adjacent to Honeyditches at Couchill (Holbrook 1987, 65-8). The Fosse Way, which at Axminster 7.5 km to the north is aligned on the Roman fort at Woodbury (Silvester and Bidwell 1984), is believed to have continued south to a Roman port at Seaton or Axmouth, though its line beyond Axminster is not currently proven (Maxfield 1986; Weddell et al. 1993). The road, in whole or in part, may have utilised the line of a pre-existing route. Three hillforts overlook the Axe as it nears the coast: Seaton Down hillfort (Hutchinson 1868; DeHER SY29SW/158), Hawksdown Camp (Hutchinson 1868; Fox 1996, 35), and Musbury Castle hillfort (Fox 1996, 44).

Comments

Seaton is located at the interface between the lands of the Dumnonii and the Durotriges. Inland access was provided by the route of the Axe. Silvester (1981b, 78) recorded a "long-standing tradition" that the Axe was formerly up to 700 m wide, that would provide a sheltered estuary of considerable size. The constriction of the river, due to the accumulation of a pebble bar across its mouth, was attributed to the post-Roman period (*ibid*; Pulman 1875, 840). Pulman also recorded William Stukeley's observation of anchors and other objects, including nails, that had been found amongst the salt marshes that developed as the Axe constricted (see Parkinson 1985; Silvester 1981b, 78; Dixon and Turton 1995).

Several sites relevant to the nodal model are located on the lower reach of the Axe. Honeyditches was the site of a Romano-British settlement and associated road (Pollard 1972; Miles 1977a; Silvester 1981b; Holbrook 1987). Excavation showed that the area had been occupied continuously through the late Iron Age and Romano-British periods (Silvester 1981b). The site lies approximately one kilometre from the sea on the western slope of the Axe estuary, with views across the river and to the coast. Coarse and fine wares from the Iron Age were recovered, including copies of La Tène forms. The majority of the Iron Age assemblage was dated to the fifth – third centuries BC; parallels were identified with material from Wessex and it was recorded that the Honeyditches assemblage "would not look out of place in settlements further to the east", such as Maiden Castle (*ibid, 62*).

As well as wares produced in local fabrics, the Honeyditches assemblage also contained a fragment of south-west La Tène decorated ware and two fragments of local copies (Silvester 1981b, 63). Cunliffe (1974, 43) stated that such material was introduced in the third century BC, but Miles (1977b, 106) argued that in the south-west it was in use by the end of the fifth century BC (Silvester 1981b, 63). A distinct group of Durotrigian sherds was attributed to a Dorset manufacturing source (Bidwell and Silvester *in* Silvester 1981b, 63-7), with one item of possible Gaulish origin that was suggested as a pre-Roman import (*ibid*, 66). Almost all of the forms identified at Honeyditches were paralleled with finds from Exeter, although they were attributed to an earlier, pre-Roman, date (*ibid*, 67).

Less than 500 m west of Honeyditches, a Roman fort was identified at Couchill (Holbrook 1987, 65-8), *c.*10 km south-west of the Roman fort at Woodbury (Silvester and Bidwell 1984) and the Fosse Way (Maxfield 1986; Weddell et al. 1993). Holbrook concludes that the Axe was extensively used by Roman shipping and that Couchill should be considered the as yet unlocated site of *Moridunum* (Holbrook 1987, 67-8).

Two kilometres from the coast on the western slope of the Axe is the hillfort site of Seaton Down (Hutchinson 1868; DeHER SY29SW/158), and on the opposite slope is Hawksdown Camp (Hutchinson 1868; Fox 1996, 35). Musbury Castle hillfort (two kilometres east of the Axe and four kilometres from the coast) isolates the end of a steep spur and overlooks the Axe (Fox 1996, 44). The concentration of three hillforts within such a small area, all on the slopes of the estuary, overlooking the river and within five kilometres of the coast suggests that the riverine route to/from the coast was important during the Iron Age. It is possible that the sites were used to control or monitor access and the movement of people and goods along the river to the coast. The material recovered was sourced locally and also from neighbouring regions and across the Channel. This suggests that the area of Seaton operated within the local, regional and international maritime networks that extended along and across the English Channel. The combination of the physical characteristics of the area and the known sites and finds determined the classification of the area as a 'probable' coastal node.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
22	Seaton	x			x	x	x		?		x	x	x		xx	

Conclusion

'Probable' site

Sidmouth (Site 23)

Location

OS NGR: 312900 087400
Sidmouth parish, Devon

Physical setting

The underlying geology comprises Triassic pebble beds topped by sandstone, mudstone and barren heath (Edmonds et al. 1975, 58; 59). The more fertile Greensands appear north of Sidmouth and run to the Blackdown Hills (*ibid*, 68-70). The river Sid flows over 12 km through a narrow valley from its source near Gittisham. The valley is deep with steep sides rising to peaks of 200 mOD. 'Fingers' of greensand ridges reach to the valley sides from the north. The lower reach of the Sid meanders through a floodplain that approaches 200 m wide. The mouth of the river has shifted through time due to the accumulation of riverine deposits.

Figure 100: Aerial photograph of Sidmouth showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Sidbury Castle: multivallate hillfort, enclosing *c.*0.4 ha, is located four kilometres from the coast (Fox 1996, 51).

Salcombe Hill: extensive plateau top east of the river Sid with evidence of Neolithic and Bronze Age occupation. The occupied area overlooks the coast one kilometre to the south (Pollard and Luxton 1978).

High Peak camp: Neolithic and Dark Age occupation (Pollard 1965; 1967). Located *c.* two kilometres west of Sidmouth and 500 m from the coast, this 'hillfort' has panoramic views from the south-west and north-east, as well as the southern sea approaches. Finds included a 'core' of Kimmeridge shale, a waste product from the manufacture of a lathe-turned armlet; it was interpreted as a spindle whorl (Pollard 1965, Figure 9 item 14; 53-5). As yet, there is no evidence of Iron Age or Romano-British occupation at High Peak (Pollard 1965; 1967).

Comments

Sidmouth is suggested as a 'potential' coastal node on the basis of its topographic setting, with a sheltered harbour/beaching area at the mouth of the river Sid that flows inland past the commanding location of Sidbury Castle. From the hillforts along the valley, the river route to/from the coast can be observed.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
23	Sidmouth	x			x	x	x		?		x	x	x		x	

Conclusion

'Potential' site

Otterton (Site 24)

Location

OS NGR: 307650 081950
Otterton parish, Devon

Physical setting

The river Otter flows through Permian rocks on an approximately north – south route to the coast. It is a narrow waterway but has an extensive tidal reach, over two kilometres inland. To the west is a flat floodplain up to 400 m wide, whereas the eastern edge of the river runs alongside rising ground that is particularly steep at The Warren and Anchoring Hill. The river now meets the sea at Otterton Ledge, a rocky point one kilometre east of Budleigh Salterton.

Figure 101: Aerial photograph of Otterton showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

In the medieval period Otterton, which was more than three kilometres from the coast, served sea-going vessels that floated up the river to its quay (Oswald 1984; Brown and Holbrook 1989).

A late second century AD Roman site was identified at Otter Point and produced finds of pottery from Dorset, the New Forest, and the continent (Brown and Holbrook 1989; Allen and Fulford 1996; Holbrook 2001).

Enclosures (undated) have been recorded from the air along the route of the river Otter (DeHER).

Comments

Despite erosion of the coast at this point since the Iron Age (estimated to be as much as 200 m based on figures in Brown and Holbrook 1989), the extensive tidal reach of the river means that the current area of Otterton could have operated as an Iron Age coastal node, as it did in the Roman period (*ibid*) and Middle Ages (*ibid*; Oswald 1984).

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
24	Otterton	x	x		x	x	x				x	?				

Conclusion

'Potential' site

Topsham (Site 25)

Location

OS NGR: 296400 088200
Exeter, Devon

Physical setting

Topsham sits at the head of the Exe Estuary at the confluence of the rivers Exe and Clyst. The Clyst is a narrow waterway that meanders extensively from Woodbury Common, whereas the Exe extends through Devon from its source on Exmoor. Topsham gently rises from the mud flats of the estuary to the ridge of Mount Howe at *c*.20 mOD. The underlying geology at Topsham is Permian sandstone. The Exe Estuary is one of the broadest in the south-west, spanning up to 2.5 km and edged with wide mud and sand flats. The mouth of the estuary is constantly shifting around the sands of Dawlish Warren and Exmouth.

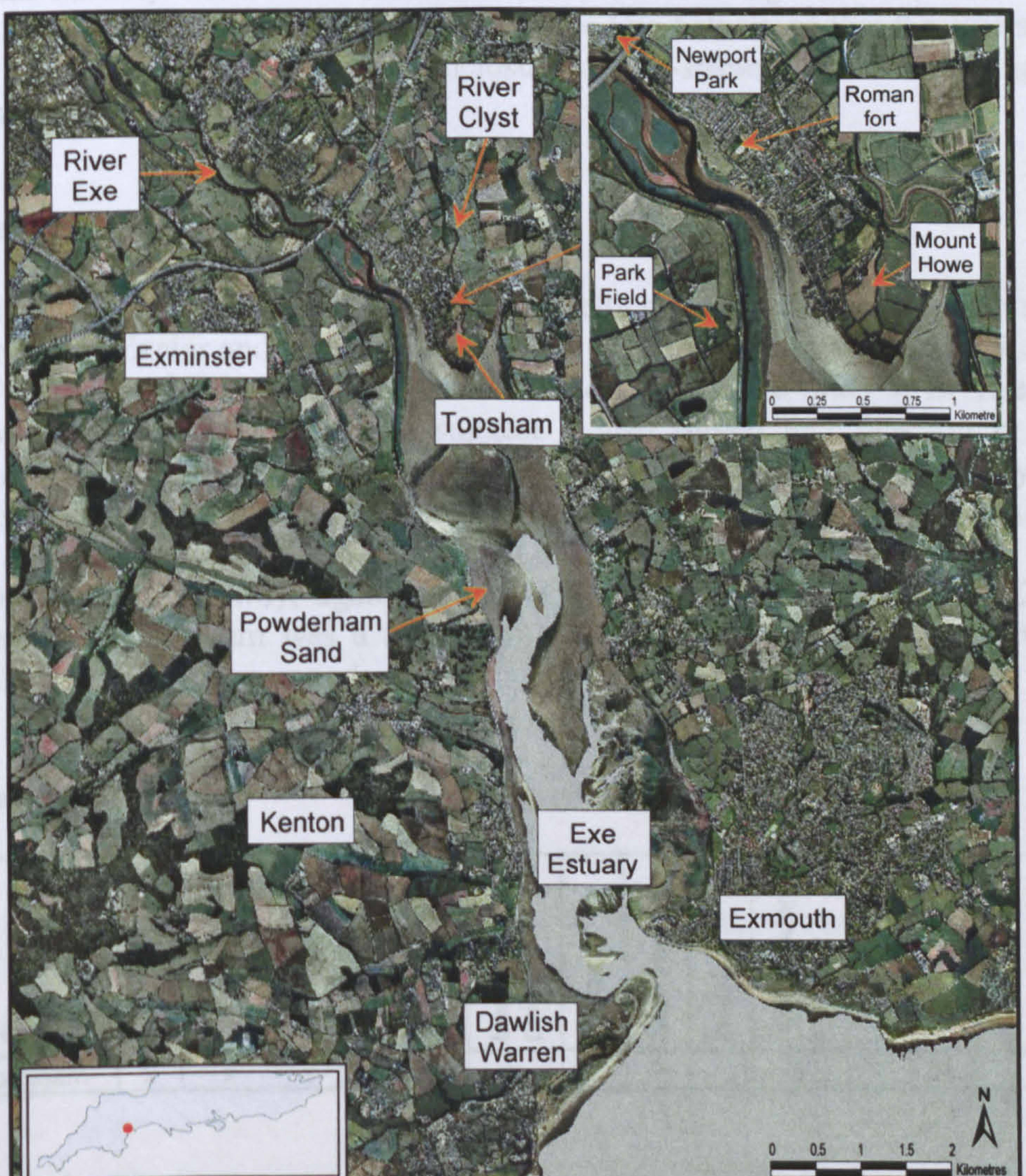


Figure 102: Aerial photograph of Topsham and the Exe Estuary showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

An Aegean bronze axe, imported during the thirteenth-century BC (possibly dating from *c.* 1250 BC) was found at Mount Howe, Topsham (Fox 1964, 83, 237 with figure), and two Bronze Age palstaves were found at Dawlish and another from Powderham Sand (DeHER SX97NE/79; SX98SE/6).

Enclosures have been identified at Topsham, Kenton, Exminster and elsewhere along the west of the Exe estuary by Devon County Council Aerial Reconnaissance Project (see Devon HER; Griffith and Quinnell 1999, map 7.4). Although these have yet to be dated it is possible that some relate to Iron Age activity in the area.

Evidence of early Romano-British (mid-first century AD) occupation was recovered by excavation opposite Newport Park (Jarvis and Maxfield 1975) with remains indicative of Iron Age four-post structures to the north (*ibid*, 215-7). Early first century AD native and imported pottery was recorded with later pottery in Park Field opposite Topsham (Montague 1935).

A Roman military base was identified at Topsham during excavation in 2000 (Exeter Archaeology 2000). It was located on the Exe Estuary so that the cliff at the water's side formed one edge to the enclosure with v-shaped ditches bounding the other three sides.

Comments

Topsham was probably a prehistoric trading settlement. It is located four miles downstream of Exeter and is known to have served the port function of the Roman town (Williamson 1959, 49; Jarvis and Maxfield 1975). The finds of Bronze Age and Iron Age material in the area suggest it also served that function in later prehistory. The early use of Topsham as a supply port for the Roman military also suggests that the area already had an established port, or facilities that could be readily adapted for military use. Branigan (1973) suggested that the area was close to a pre-Roman track way, again hinting at its Iron Age use. Holbrook (2001) considered that Topsham was a nodal point in the south-west coasting network, established by the Roman period.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
25	Topsham	x	x	x	x	x	x	?	?		x	?	?		xx	2

Conclusion

'Probable' site

Teignmouth (Site 26)

Location

OS NGR: 294000 072230
Shaldon, Stokeinteignhead, Haccombe with Combe, Newton Abbot, Kingsteignton, and Bishopsteignton parishes, Devon

Physical setting

Permian with Tertiary sands, gravels and clays. The river Teign flows approximately south from Dartmoor to Newton Abbott where it turns abruptly to flow east for the final seven kilometres to the sea. The final stretch of the river is edged by wide mudflats. It meets the sea at the shifting sand bar of Teignmouth which has a wide, sandy beach, backed by red sand cliffs.

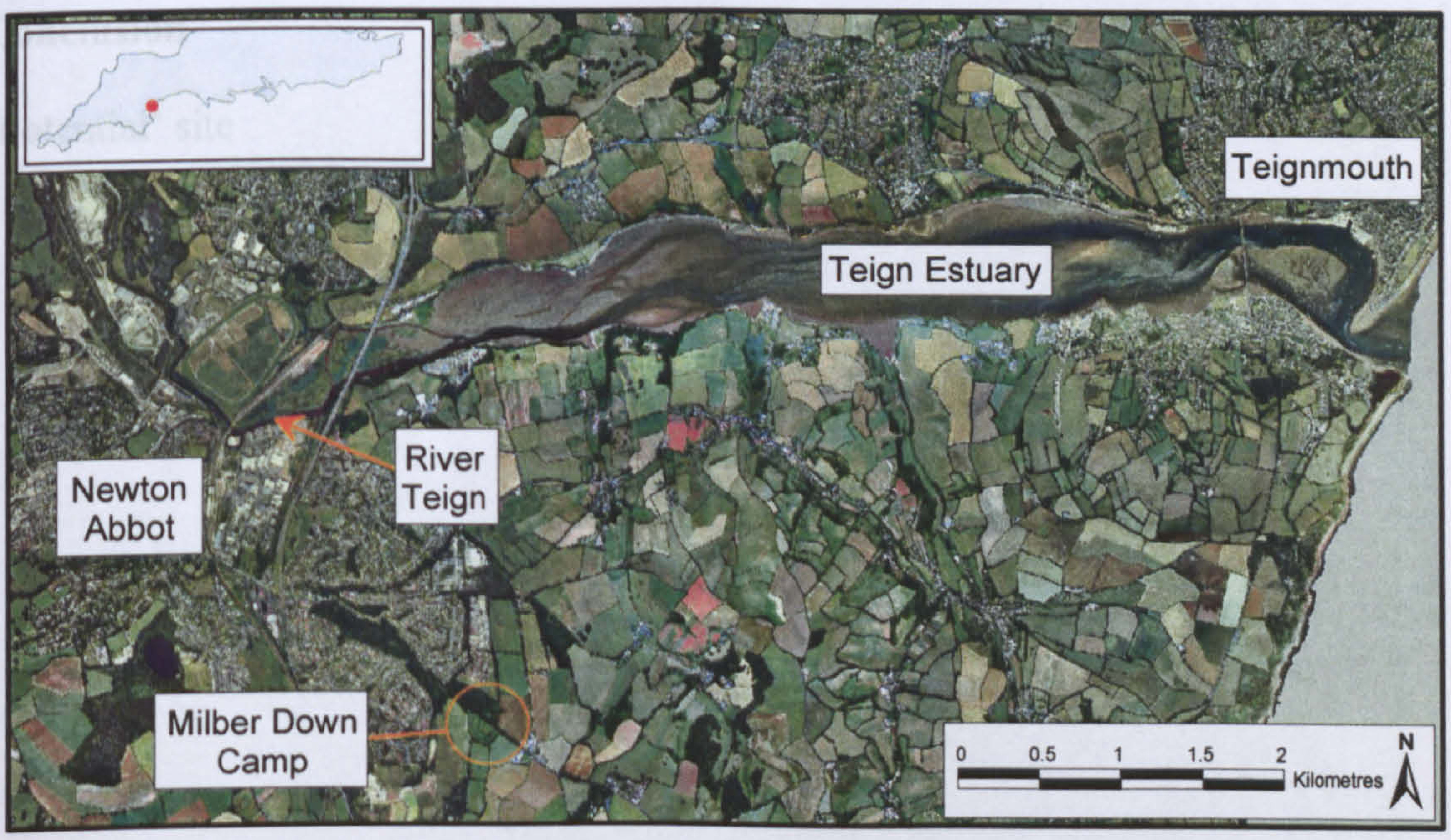


Figure 103: Aerial photograph of the Teign Estuary showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Enclosures have been identified in the area by Devon County Council Aerial Reconnaissance Project (and see Griffith 1983).

Milber Down Camp, an Iron Age settlement, lies within a complex multiple bank earthwork system, although this is not considered defensive (the 'hillfort' is on a slope, 35 m below the hill summit and falling a further 30 m within its defined extent (Fox 1996, 42)). Middle – late Iron Age south-western pottery was recovered during excavation with three bronze zoomorphic figures (a bird, stag and duck) (see Fox et al. 1949).

Comments

The clear approach to, and long inland access via, the Teign would recommend this area for use by prehistoric travellers. The presence of the Milber Down hillfort on high ground (*c.* 110 mOD), just two kilometres from the river, heightens the possibility that this area was a maritime node used in the Iron Age.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
26	Teignmouth	x			x	x	x				x	x	x		x	

Conclusion

'Potential' site

Tor Bay (Site 27)

Location

Paignton Harbour OS NGR: 289600 060240
Torbay Unitary Authority and South Hams District, Devon

Physical setting

Devonian rocks with Permian outcrop at Paignton. The sweep of Tor Bay measures *c.*16 km between Brixham in the south and Hope's Nose in the north. It is sheltered from the west by the South Hams and from the south by the protrusion of the Brixham headland. The bay is clear of navigational hazards and has wide, sandy beaches at Broad Sands, Goodrington Sands, Paignton, Hollicombe, Livermead Sands, and near Torre Abbey. In the waters of the bay, off Hope's Nose, are two distinct islets, Thatcher Rock and Ore Stone. Inland, the shallow beaches are backed by gently rising land through which run several freshwater streams and rivulets.

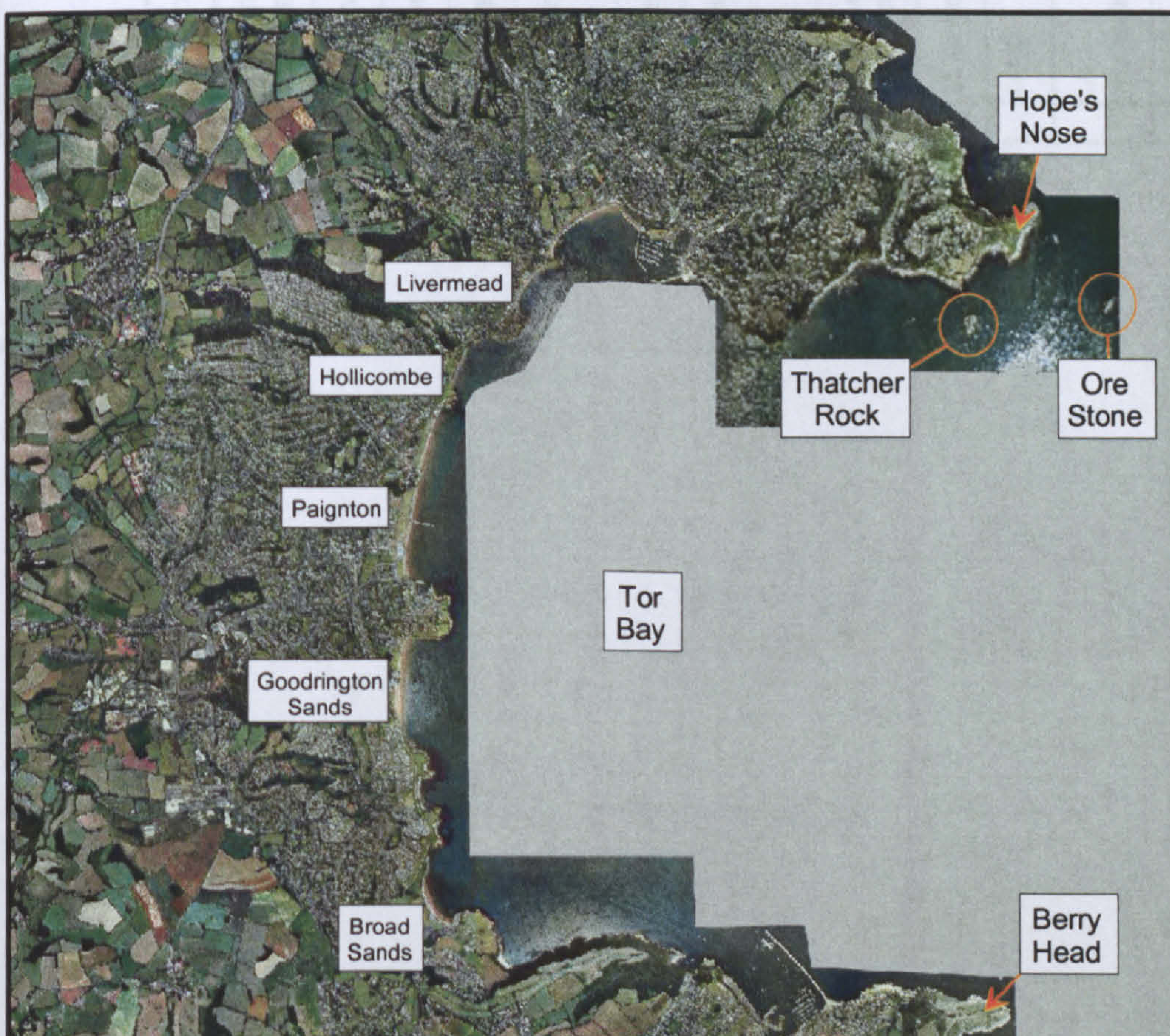


Figure 104: Aerial photograph of Tor Bay showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Berry Head univallate hillfort marks the southern extent of the Bay (DeHER SX95NW/5). Numerous enclosures identified by the Devon County Council Aerial Reconnaissance Project (see Devon HER).

Comments

The particularly sheltered waters of the bay, with numerous landing points, a hillfort marking its southern extent, and identifiable sea marks to the north, suggest that this area is a potential coastal node.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
27	Tor Bay		x	x	x	x	x			?						

Conclusion

'Potential' site

Dartmouth (Site 28)

Location

OS NGR: 287900 051300
Dartmouth parish, Devon (the lower estuary is fringed by the parishes of Dittisham, Cornworthy, Ashprington, Stoke Gabriel, and Kingswear).

Physical setting

The river Dart rises on Dartmoor and flows to the sea at Dartmouth between the steeply rising sides of a narrow estuary. The promontory at Kingswear protrudes into the estuary, sheltering the harbour area to the north. Despite the steep valley sides, beaching points are apparent at Rough Hole, Kingswear, Mill Point and Dittisham, with deep water anchorages along the length of the harbour area. The local geology is Lower Devonian Dartmouth Slates.

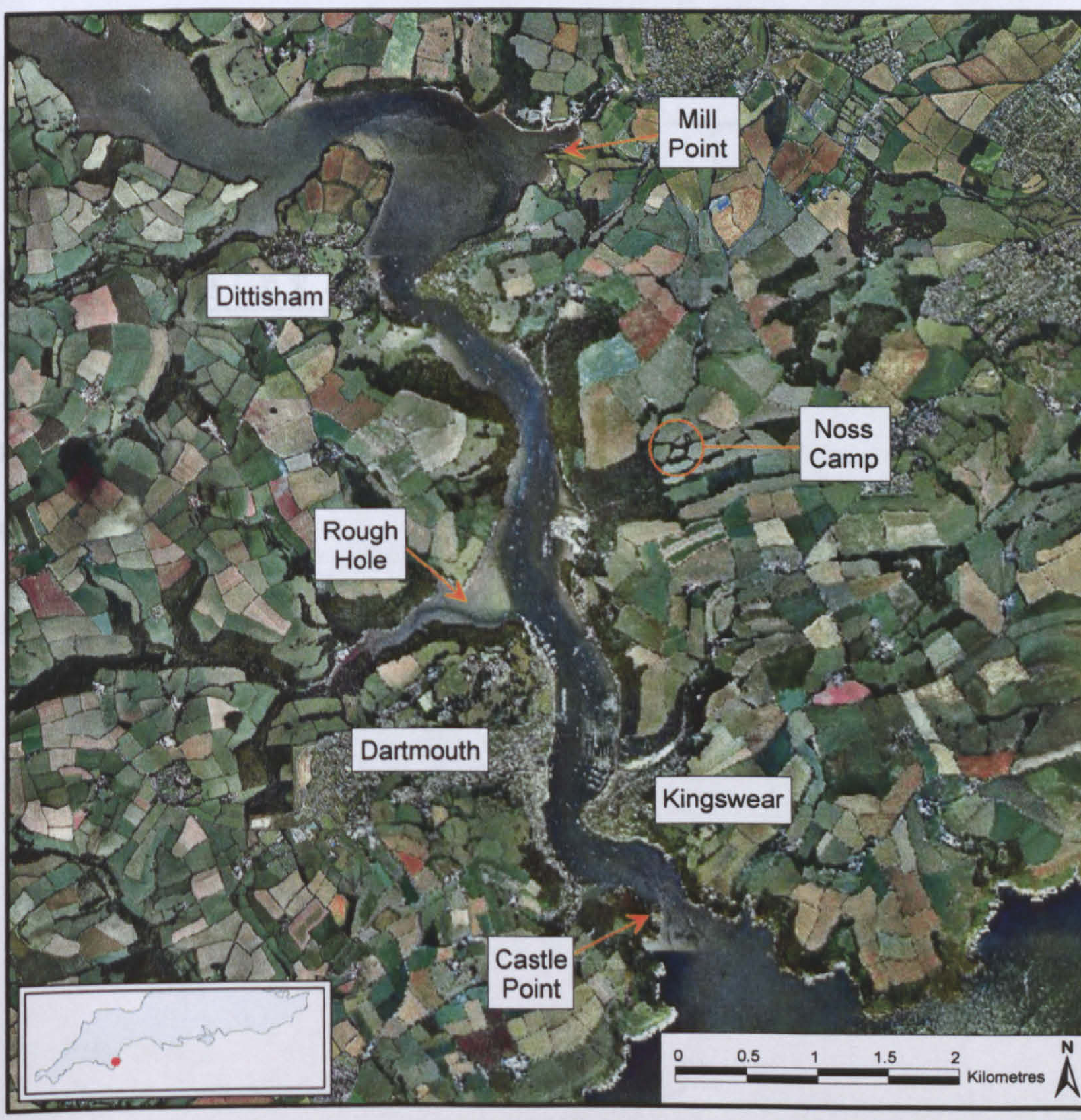


Figure 105: Aerial photograph of Dartmouth showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Noss Camp hillfort (Fox 1952; 1996, 45; Lewis et al. 1987) occupies a spur on the eastern edge of the Dart Valley, at *c.*150 mOD, one kilometre from the river Dart.

Enclosures (undated) have been identified from the air on both sides of the Dart valley along the lower reaches of the river (DeHER).

Comments

Dartmouth provides a sheltered stretch of deep water with anchorages and landing points suitable for all types of prehistoric vessel. The approach to the estuary from Start Bay is clear of hazards and the river leads deep into Devon to Dartmoor. The harbour area is particularly sheltered and suitable as a safe haven due to the protection afforded by Castle Point and Kingswear. Noss Camp, an Iron Age multivallate hillfort, is located on a spur overlooking the harbour and up-river approach.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
28	Dartmouth	x	x		x	x	x				x		x			

Conclusion

'Potential' site

Kingsbridge Estuary (Site 29)

Location

Mouth of estuary OS NGR: 274100 039200
Salcombe, Malborough, West Alvington, Kingsbridge, Charleton, South Pool, and East Portlemouth parishes, Devon

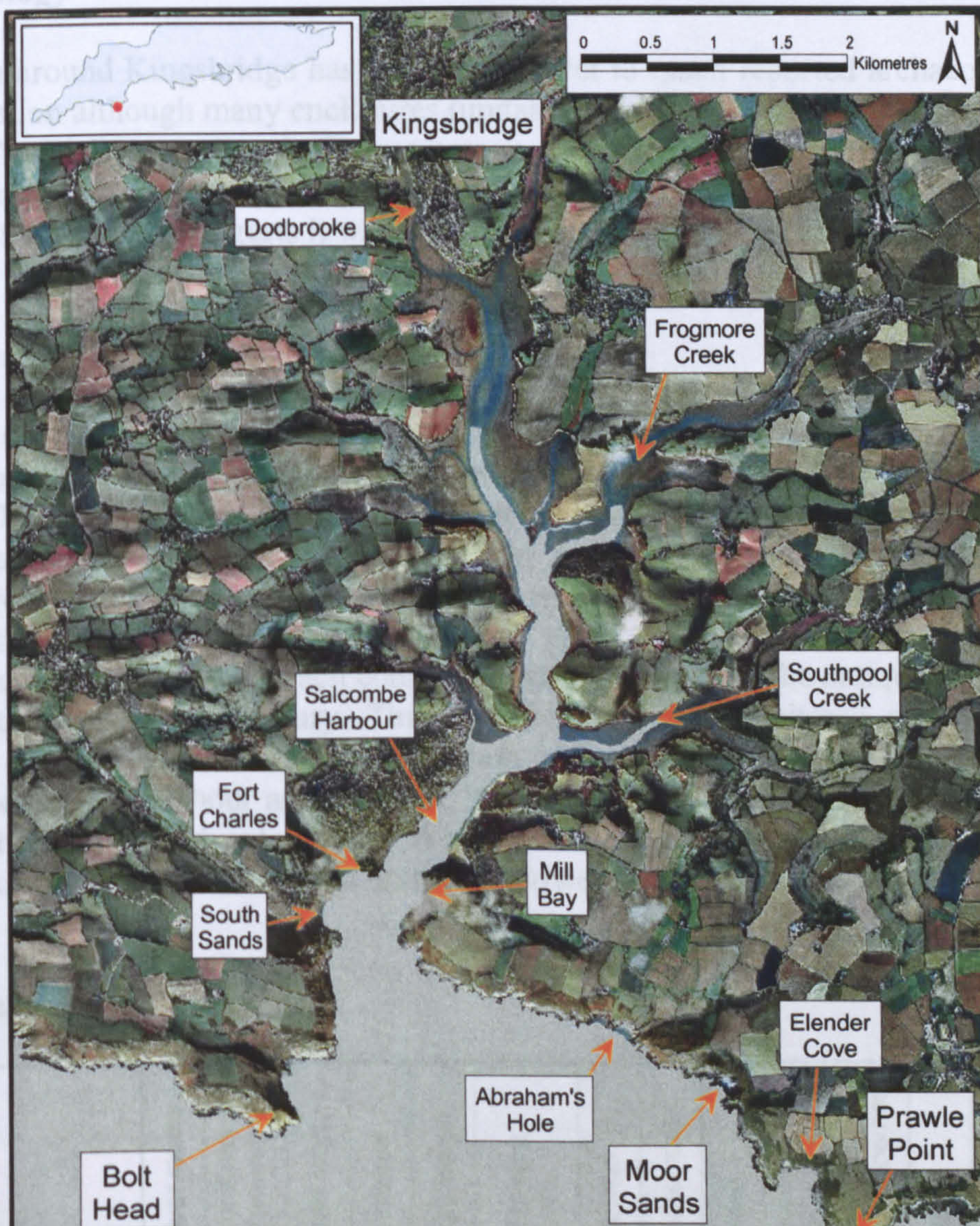


Figure 106: Aerial photograph of Kingsbridge Estuary showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Physical setting

Lower Devonian geology. The entrance to the estuary is marked by the opposing points of Bolt Head and Prawle Point from where it runs seven kilometres north inland to Kingsbridge. Salcombe Harbour lies immediately within the entrance and the estuary is fed by Southpool Creek, Frogmore Creek, and Dodbrooke and an unnamed rivulet that meet south of Kingsbridge at the head of the estuary. The main estuary is fringed by extensive intertidal muds, up to 700 m wide in places. Nearer the coast, at Salcombe Harbour, the water flows between steeply rising cliffs with sand beaches at Mill Bay, South Sands, and Fort Charles. The wider estuary mouth is dominated by sheer cliffs with small sandy coves at Abraham's Hole, Venerick's Cove (Moor Sands) and Elender Cove.

Archaeology

The area around Kingsbridge has not been subject to much reported archaeological investigation although many enclosures (undated) have been identified as part of the Devon Aerial Reconnaissance Programme in the vicinity of the estuary (DeHER). The Moor Sands Bronze Age 'wreck' site (Muckelroy 1980; 1981) just outside the mouth of the estuary suggests it was part of the ancient maritime network.

Comments

Known as "a great port that never was" (Calder 1986, 300), Salcombe sits at the mouth of the Kingsbridge Estuary that gives access to several miles of navigable water. The harbour lies between Dartmouth to east and Plymouth to west, and has greater access to the interior than Dartmouth. However, a sand bar across entrance has scarcely one metre of water over it at low tide, making the approach difficult (Williamson 1959, 136). A Bronze Age wreck near the entrance may have foundered in the tricky approach conditions but is evidence of the antiquity of use of the routes to/from the estuary. This area benefits from sheltered waters which provide access to the interior of the South Hams, safe anchorages and beaching points within the harbour and estuary. It has been suggested as a 'potential' node due to those natural advantages and its position on the extreme south point of Devon that would be a useful safe haven on the south-west coasting routes.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
29	Kingsbridge Estuary	x			x	x	x				x	?				

Conclusion

'Potential' site

Bigbury Bay (Site 30)

Location

OS NGR: 265600 043900
Holbeton, Kingston, Ringmore, Bigbury, Thurlestone, South Milton and South Huish parishes, Devon

Physical setting

The bay stretches for *c.*15 km between Bolt Tail in the south and Mothecombe in the north in an area of Lower Devonian slates and shillets. Along its length the rocky shore is interspersed with flat, sand beaches, notably at Thurlestone, Bantham and Challaborough, and sheltered coves at Hope Cove and Aymer Cove. The coastline is broken by the wide estuary mouths of the rivers Erme and Avon that both rise on Dartmoor. Off shore from Bigbury on Sea, immediately west of Bantham, is Burgh Island which is connected to the mainland by a natural compacted sand causeway *c.*250 m long. South of the Avon the land rolls north and south between high ridges, oblique to the coast, which rise to *c.*100 m. North of the Avon, the land rises more steeply away from the coast to *c.*120 m.

Archaeology

Bolt Tail promontory fort marks the southern end of the bay. It has not been excavated, but a single earthwork bank is still upstanding which isolates *c.*5 ha of the promontory (Fox 1996, 21-2). Immediately east of Bolt Tail is Hope Cove where a possible Iron Age metal working site was recorded (Winder 1924b, 124).

Bronze Age metalwork has been recovered from Thurlestone (DeHER SX64SE), and the mould for a palstave axe was found on Burgh Island (Pearce 1983, 433).

Dark Age and possible Iron Age sites have been partially investigated at Bantham (Griffith 1986a; Griffith and Reed 1998) and Mothecombe (Fox 1961b, 80; DeHER SX64NW/2). Offshore from Mothecombe, at West Mary's Rock, tin ingots were recovered from the seabed which are possibly of prehistoric date (Fox 1995).

30 enclosures have been identified within five kilometres of the coastline of the bay (Griffith and Quinnell 1999; Table 19). Also within five kilometres of the coast are the Iron Age hillforts of Yarrowbury and Holbury (see A Fox 1958, 222-4).

Comments

The antiquity of use of the Bigbury Bay area is attested by the finds of Bronze Age and Iron Age material. Burgh Island has been suggested in previous studies as the location of *Ictis*, the Bronze Age tin exporting site named by Diodorus (V.22.2) (Davis 1997; see Chapters Three and Eight). The tin ingots found at the mouth of the Erme have enhanced speculation that the area was indeed involved in international trade in metals and perhaps other goods (McDonald 1993; Davis 1997) in later prehistory, although as the ingots are currently undated, their association with prehistoric activity cannot be confirmed.

Bigbury Bay was investigated and confirmed as a 'potential' Iron Age coastal node as part of this research (see Chapter Eight). The combination of landmark features (Bolt Tail, the Long Stone and Burgh Island), known Iron Age activity and finds, and the possible association with high ground enclosures, suggested that Bigbury Bay was a suitable nodal location.

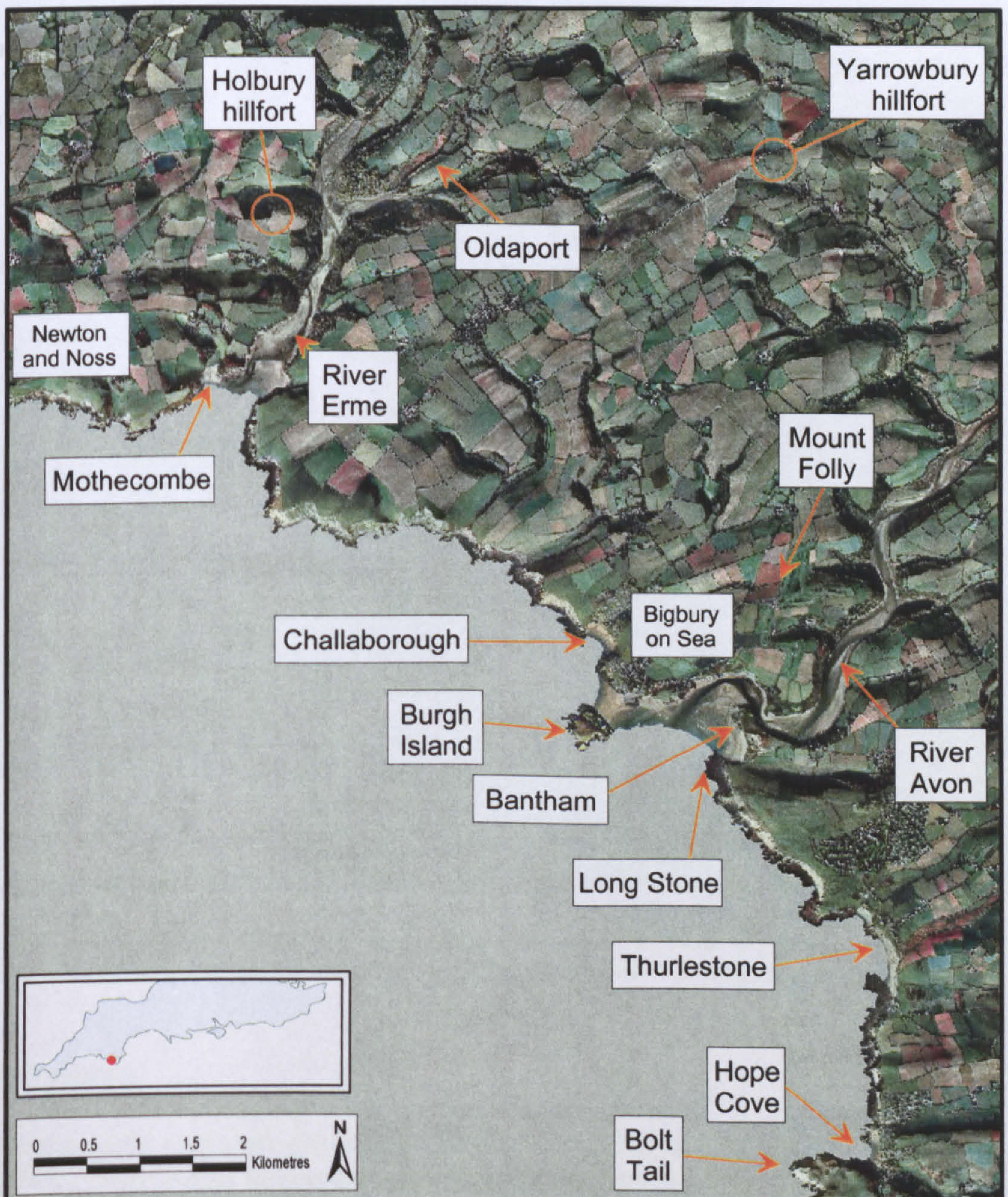


Figure 107: Aerial photograph of Bigbury Bay showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
30	Bigbury Bay	x	x	x	x	x	x	?	?	x	x	x	x	?	x	

Conclusion

'Potential' site

Wembury Bay (Site 31)

Location

OS NGR: 250100 048250
Wembury parish, Devon

Physical setting

An area of Lower Devonian rocks comprising Wembury Siltstones of shale slate and siltstone (Edmonds et al. 1975, 25). Located to the south-east of Plymouth Sound, and bounded to the south and east by the river Yealm that flows into Wembury Bay. The Great Mew Stone, an islet of *c*.4 ha, lies 600 m off shore from Wembury Point.

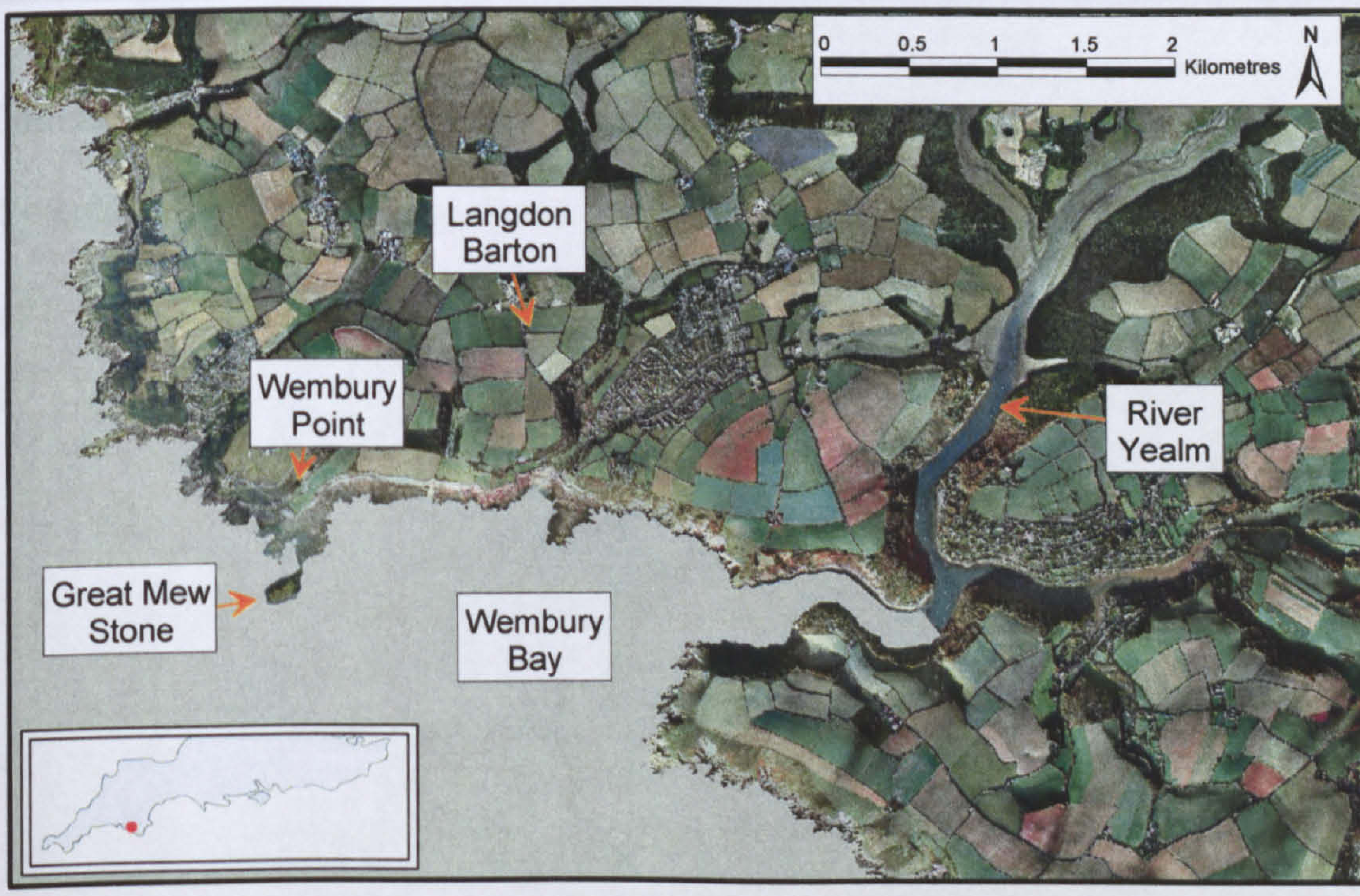


Figure 108: Aerial photograph of Wembury Bay showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

A trapezoidal cropmark (undated) was recorded *c*.800 m from the shore at Langdon Barton by the Aerial Reconnaissance Programme (DeHER).

Dark Age features (ditches and gullies), with similarities to the sites at Bantham and Mothecombe, have been recorded on the beach (Reed 2003).

Comments

The location of Wembury is signified from the sea by the Great Mew Stone which also offers a sheltered landing spot for small craft. Inland access to Dartmoor is provided by the route of the river Yealm.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
31	Wembury	x		x		x	x			x	x					3

Conclusion

'Potential' site

Mount Batten (Site 32)

Location

Centre NGR: 24865 05325
Within Plymouth Unitary Authority

Physical setting

Mount Batten is a promontory of Devonian limestone, maximum elevation *c*.26 mOD, on the north-east shore of Plymouth Sound, where the River Plym enters The Sound at Cattewater. It is connected to the mainland by a low-lying isthmus that could flood at high tide (until the Plymouth breakwater was built in 1812). North of the isthmus is Clovelly Bay; south is Batten Bay. The land rises to the south first to Stamford Hill (*c*.40 mOD) then to Staddon Heights (*c*.135 mOD). As at Portland (but not as extensively) Mount Batten has suffered from nineteenth century quarrying - much of the mound of the mount has now disappeared; the land that remains is heavily built over, mainly by military buildings and the civilian structures that have replaced them.

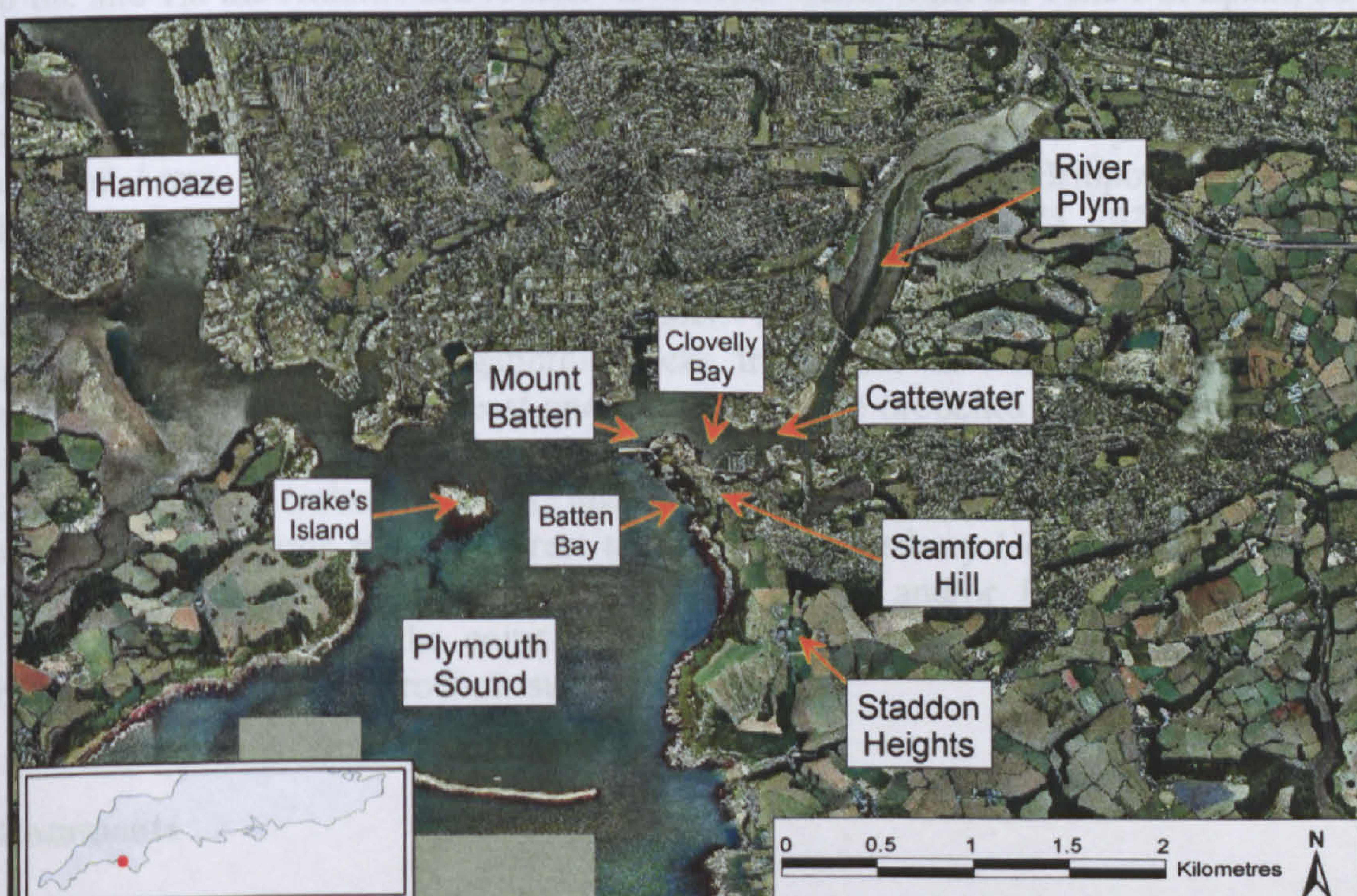


Figure 109: Aerial photograph of Mount Batten and Plymouth Sound showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

After years of limited amateur salvage recording, the area of Mount Batten was excavated by Barry Cunliffe between 1983-6 (Cunliffe 1988a) and more recently by AC Archaeology (Gardiner 2000).

An impressive range of metalwork, including material from the Ewart Park and Llynfawr phases (late Bronze Age II - III) (roughly equivalent to continental Hallstatt B2/3 and Hallstatt C), *c.*900-600 BC has been found here. Armorican axes were recovered by excavation and were interpreted as indications of trade with Brittany - possibly directly with the ports of northern Finistère (Cunliffe 1988a) or possibly via third parties.

Finds from the 'Mount Batten phase' of metalwork are concentrated in the Penwith peninsula of Cornwall and in the Portland-Weymouth Bay region of Dorset (see Pearce 1983, figure 4.24). The coastal distribution from Mount Batten is clear and Cunliffe commented that "Since both Penwith and Mount Batten are metal-rich regions, it would be tempting to see them as production centres trading their yields eastwards to Wessex using Portland/Weymouth as the first and prime port of entry. This Wessex coast link is one which recurs in later centuries" (Cunliffe 1988a, 103).

Iron Age metal artefacts found at Mount Batten imply widespread continental contact at that time (Cunliffe 1988a). The Iron Age cemetery on Stamford Hill, adjacent to Mount Batten, contained an Iberian fibula that would have been brought to the site via the Atlantic sea routes. It matches items from La Tène I in Spain, so probably arrived in Britain during the fourth century BC (Cunliffe 1975, 147). Also in the cemetery, a rich female cist burial contained grave goods including a Celtic mirror (Fox 1964, 134), beads, and a bronze bowl. The mirror has parallels at the sites of Arras in West Yorkshire, Birdlip in Gloucestershire, Bridport in Dorset, Trelan Bahow in Cornwall, and Colchester in Essex (Cunliffe 1975, 293).

Finds of regionally imported material suggest that Mount Batten was a key link in east - west trade routes along the Channel. Many of the decorated pots found at the site have inclusions of gabbroic rocks that occur in western Cornwall (for example, at the Lizard). At least one of the Iron Age brooches was probably made in Wessex (Cunliffe 1988a). Over 40 Armorican (especially Coriosoliten), Durotrigian, and Dobunnic coins, and finds of Kimmeridge shale and two small Armorican potsherds suggests direct trade with Hengistbury Head or other sites in the central coastal region (possibly Poole Harbour and/or Portland). Cunliffe (1998a) suggested that the coins were shipped west from Hengistbury Head as bullion with other local products such as shale.

Comments

Mount Batten is one of two 'definite' coastal nodes known on the Iron Age south coast of Britain. It has been interpreted as a major site of along- and across-Channel trade, controlling the movement of metals from the Dartmoor fringes along the Rivers Tamar, Tavy, and Plym (Cunliffe 1988a, 103), as well as metals from south-eastern Bodmin Moor (Fox 1964, 114) and other products from the hinterland. It experienced continual use as an ideally sited 'port of trade' from the late Bronze Age into the Romano-British period (*c.*800 BC – AD 50 and possibly beyond). The antiquity of use of Mount Batten is suggested by its occupation by metal workers using local and imported metals to produce bronze items. The location was suitable for commanding ores from the nearby Dartmoor fringe and overseeing movements of scrap metal and other goods along the Channel seaways from Cornwall or Brittany. It is located at the rear of Plymouth Sound, and protects the safe anchorage of Cattewater (Cunliffe 1988a, 103). There are beaching points at Clovelly and Batten Bays.

Mount Batten is another south coast site which has been suggested as the location of *Ictis* (Cunliffe 1983; McGrail 1995a, 276-7). Both Cunliffe and McGrail argue that the archaeological evidence from the site suggests it as a more likely location than St Michael's Mount. The finds indicate it was involved in international trade during the period of the fourth century BC – first century AD. Tin and copper from extraction sites at Dartmoor and perhaps at Callington were easily brought to Mount Batten by boats travelling down the Rivers Tay and Tamar (McGrail 1995a, 276-7). An ingot of metal from the area of Callington was found at Hengistbury Head, attesting to the links between the central and south-west sectors (see Fox 1964, 130).

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
32	Mount Batten	x	x	x	x	x	x	x	x	x	x		x	x	xx	1

Conclusion

'Definite' site

Tamar Estuary (Site 33)

Location

OS NGR: 244000 056000 (Hamoaze)
Bounded by the parishes of Maker with Rame, Millbrook, Torpoint, Antony, Saltash, Landulph, Pillaton, and St Dominick in Cornwall, and Bere Ferrers and Bickleigh parishes and the Unitary Authority of Plymouth in Devon.

Physical setting

Plymouth Sound is fed from the west by Hamoaze, that in turn is fed by the Lynher, Tamar and Tavy rivers and their tributaries. The Tamar cuts back through rocks of the Lower, Middle and Upper Devonian and marks the boundary between the counties of Cornwall and Devon. In the Sound is the rock islet of Drake's or St Nicholas' Isle.

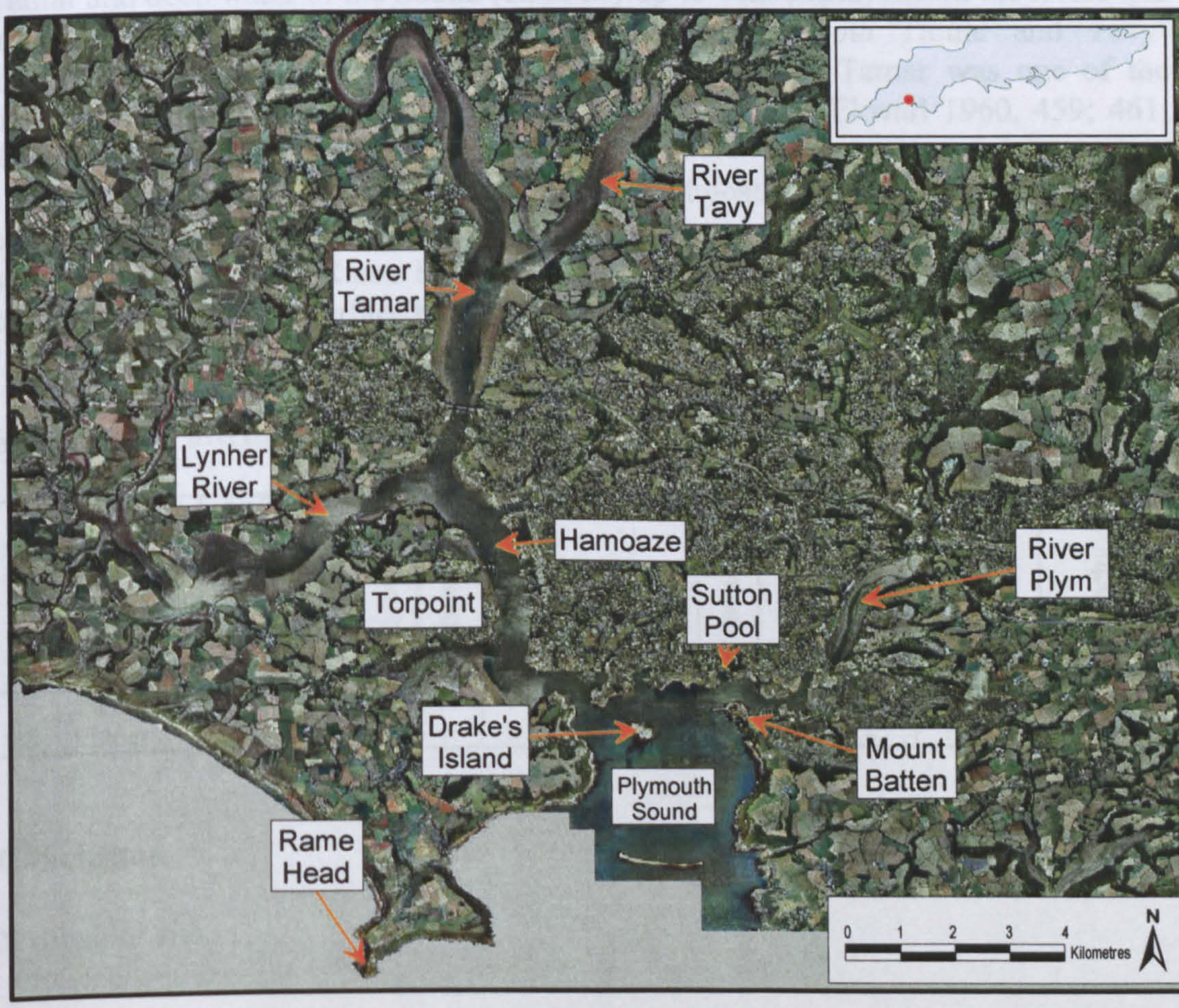


Figure 110: Aerial photograph of the Tamar Estuary showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

The distinctive land mark of Rame Head promontory fort lies at the western entrance of Plymouth Sound. In a review of the estuary's archaeology, Firth et al. (1998, 28) concluded that most Iron Age activity was concentrated to the west of the Tamar, including a number of univallate and multivallate enclosures. However, an Iron Age settlement was proposed at Sutton Pool (on the edge of the Sound, north of Mount Batten) (*ibid*, 30) and aerial reconnaissance has identified enclosures (albeit as yet undated) at various places along both sides of the estuary (F Griffith, pers. comm.). Continental imports have been recovered from Torpoint.

Comments

It has been suggested (Firth et al. 1998, Table 1), that the Iron Age (0 BC) MSL in the area of the Tamar Estuary was 0.5 mCD (that is approximately equivalent to -2.72 mOD), which would further suggest a rise of 2.72m to present day levels. Even with a level approaching three metres below today's the large catchment of the Tamar and deep water of the Sound (currently up to 40m depth) meant the rivers and inland routes were easily accessible to Iron Age vessels. Both 'Tamar' and 'Tavy' are considered to have originated as British river-names; Tamar was one of the rivers named by Ptolemy on his map of southern Britain (Ekwall 1960, 459; 461; Rivet and Smith 1979, 465).

The great extent of inland access, reaching almost to the north coast of Devon, combined with the sheltered anchorages, beaching points and known sites of the area (e.g. Sutton Pool, Rame Head, Mount Batten) suggest the Tamar Estuary as a probable node in the interface between the coastal and riverine networks.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
33	Tamar Estuary	x			x	x	x	?	?		x	?	x			2

Conclusion

'Probable' site

Looe Bay (Site 34)

Location

OS NGR: 225700 053000
Looe parish, Cornwall

Physical setting

Lower Devonian geology. The East and West Looe rivers converge at a point approximately one kilometre from the coast where a small, sandy beach at the mouth of the river is one of only two small breaks in the rocky shore in the *c*.25 km between Fowey and Seaton (the other break is Millendreath Beach just 1.3 km to the east). Inland access along the rivers leads to Bodmin Moor.

Separated by a small channel, off shore is St George's Island (also known as Looe Island), the largest island off the Cornish coast (Todd 1987, 187). (NB: Todd (*ibid*) states that the island is 1.5 km off shore, whereas the HWM of the island and adjacent mainland coast at Samphire Beach are just 650 m apart.)

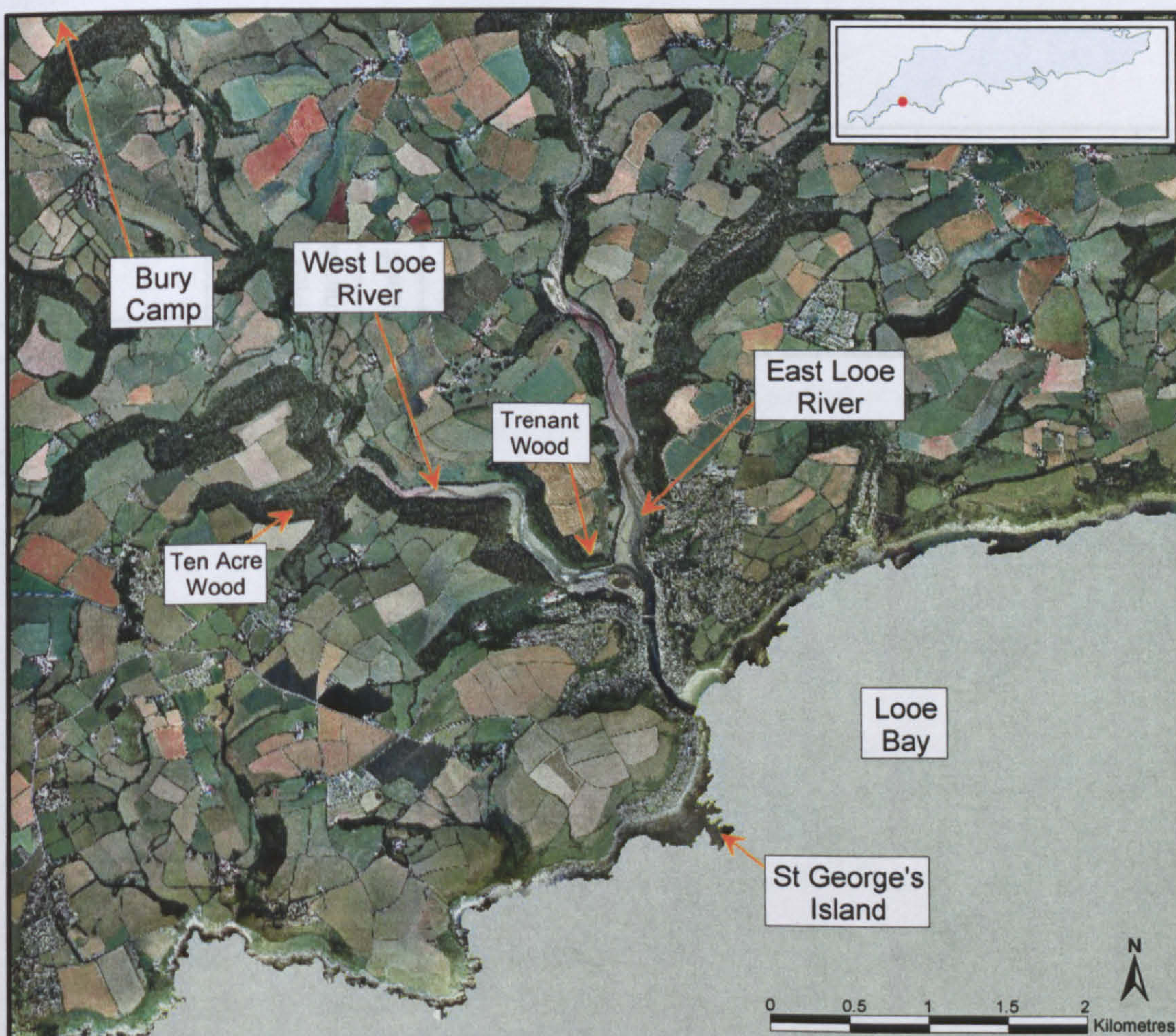


Figure 111: Aerial photograph of Looe Bay showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Bury Camp (Lanreath parish) multivallate hillfort at the head of a tributary of the West Looe river.

A high ground enclosure / settlement above Ten Acre Wood, on a spur overlooking the West Looe river.

Comments

The combination of the off shore island and break in the rocky coast at the mouth of the river make Looe an easily identifiable location from vessels at sea. The extensive inland access afforded by the West and East Looe rivers and their tributaries meant the water routes could be followed as far as Bodmin Moor and the upland resources of that area. A bronze ingot was found amongst rocks close to St George's Island which, although undated, closely resembled Bronze Age copper ingots known from the Mediterranean and was similar to the *astragalos* ingot shape referred to by Diodorus (V.22.2) (Beagrie 1985). The island was proposed but then dismissed (due to lack of evidence) as another possible site of *Ictis* (Todd 1987, 187).

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
34	Looe Bay	x		x	x	x	x			x	x		x			

Conclusion

'Potential' site

Fowey (Site 35)

Location

OS NGR: 21230513
Fowey parish, Cornwall

Physical setting

Area of Lower Devonian geology. Fowey is on the western mouth of the Fowey Estuary which is fed by Pont Pill and the river Fowey, that in turn has tributaries leading east and north-east inland. The entrance to the estuary is protected from westerly winds by the protrusion of Gribbin Head into the English Channel and is a safe natural harbour. The narrow estuary and rivers are fringed by rapidly rising ground, with heights in excess of 100 mOD in places reached within 200 – 300 m of the shores. The Fowey is tidal as far as Lostwithiel (*c.*10 km from the coast) and further inland access is possible in shallow draught or flat-bottomed boats. Although the waterways are edged by steep ground, the deep waters provide good anchorage in the estuary and landing places are located at Readymoney (Fowey), Mixtow, and possibly at the confluence of the Fowey and Lerryn rivers at St Winnow Point.

Archaeology

The estuary and rivers are lined by high ground on which several enclosures and hillforts have been identified. On the steep rise, north of the small beach of Readymoney at Fowey, is a prehistoric enclosure (CoSMR 26707). At Castle Dore, three kilometres NNW of Fowey, and two kilometres west of the river, is a multivallate hillfort with a large enclosure *c.*500 m to the south (Radford 1951; Quinnell and Harris 1985). Both sites are on high ground locations overlooking the river Fowey and Par Sands (a large, sheltered cove and beach) to the south-west. Iron Age finds have been recovered from both sides of the estuary (for example, CoSMR 26838, 26751, 26843, 26804, 26806).

Comments

The narrow estuary at Fowey[58] provides high levels of shelter for vessels at anchor between the steep sides, and the river routes provide good access inland. The tin resources of Bodmin Moor are accessible from the river and much of east Bodmin was known as 'Fowey Moor' in the medieval period (F Griffith, pers. comm.).

[58] The origin of the name 'Fowey' is disputed. Ekwall (1960, 185) believes that it is derived from the Celtic/Breton word for 'beech' and is considered to denote 'beech river'. The use of trees is a common maritime location identifier. However, Padel (1988, 95-6) states that it is probably derived from a personal name.

From the river Fowey, an overland connection of *c.* two hours' portage to the Camel provides a link between the north and south coasts of the peninsula (Calder 1986, 325-6). The connection between the Irish Sea and English Channel might have been attractive to prehistoric travellers as it shortened the journey distance and obviated the need to sail around Land's End. The importance of the route between the Camel and Fowey was explored by Radford (1951) in his examination of Castle Dore which was located in a position to command the riverine and overland routes.[59] The physical characteristics, Iron Age sites and possible extended network connections suggest that Fowey was a probable maritime node.

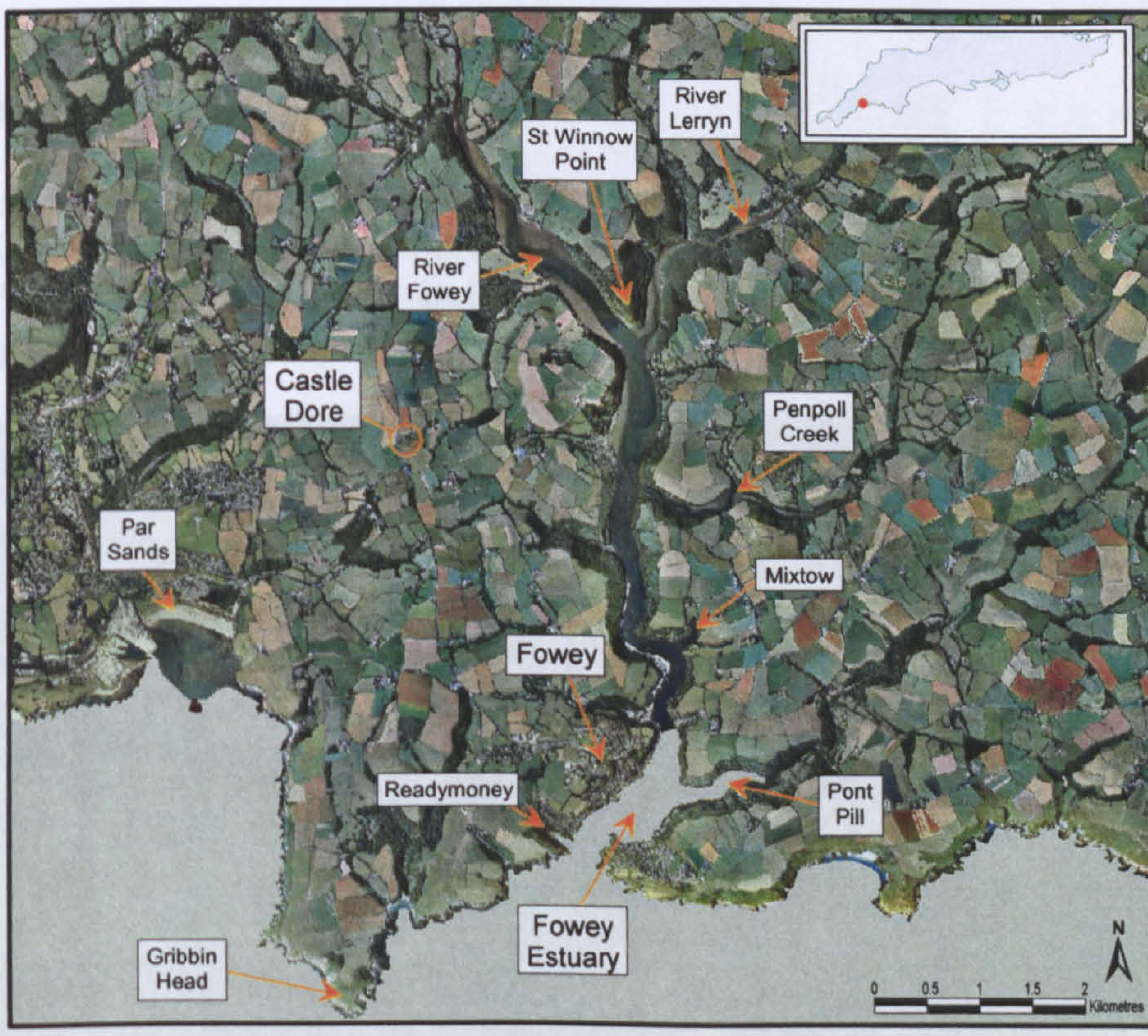


Figure 112: Aerial photograph of Fowey showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
35	Fowey	x	x	x	x	x	x	?	?		x	x	x		x	

Conclusion

'Probable' site

---

[59] Radford (1951) considered that Castle Dore was essentially a post-Roman site but subsequent dating of the ceramic assemblage revealed that the main use of the site was during the fourth – first centuries BC (Quinnell and Harris 1985).

Mevagissey Bay (Site 36)

Location

Mevagissey Harbour at OS NGR: 201700 044800
Mevagissey parish, Cornwall (also fringed by St Gorran, St Ewe and St Austell parishes)

Physical setting

The area is comprised of Devonian rocks, mainly of the Lower Devonian phase. Mevagissey Bay lies half-way between Falmouth and St Austell. It is fed by the rivers Portmellon, Mevagissey, and St Austell that exit at sheltered, sandy beaches. The bay mainly has a rocky edge, but with sheltered stretches of firm sand beach.

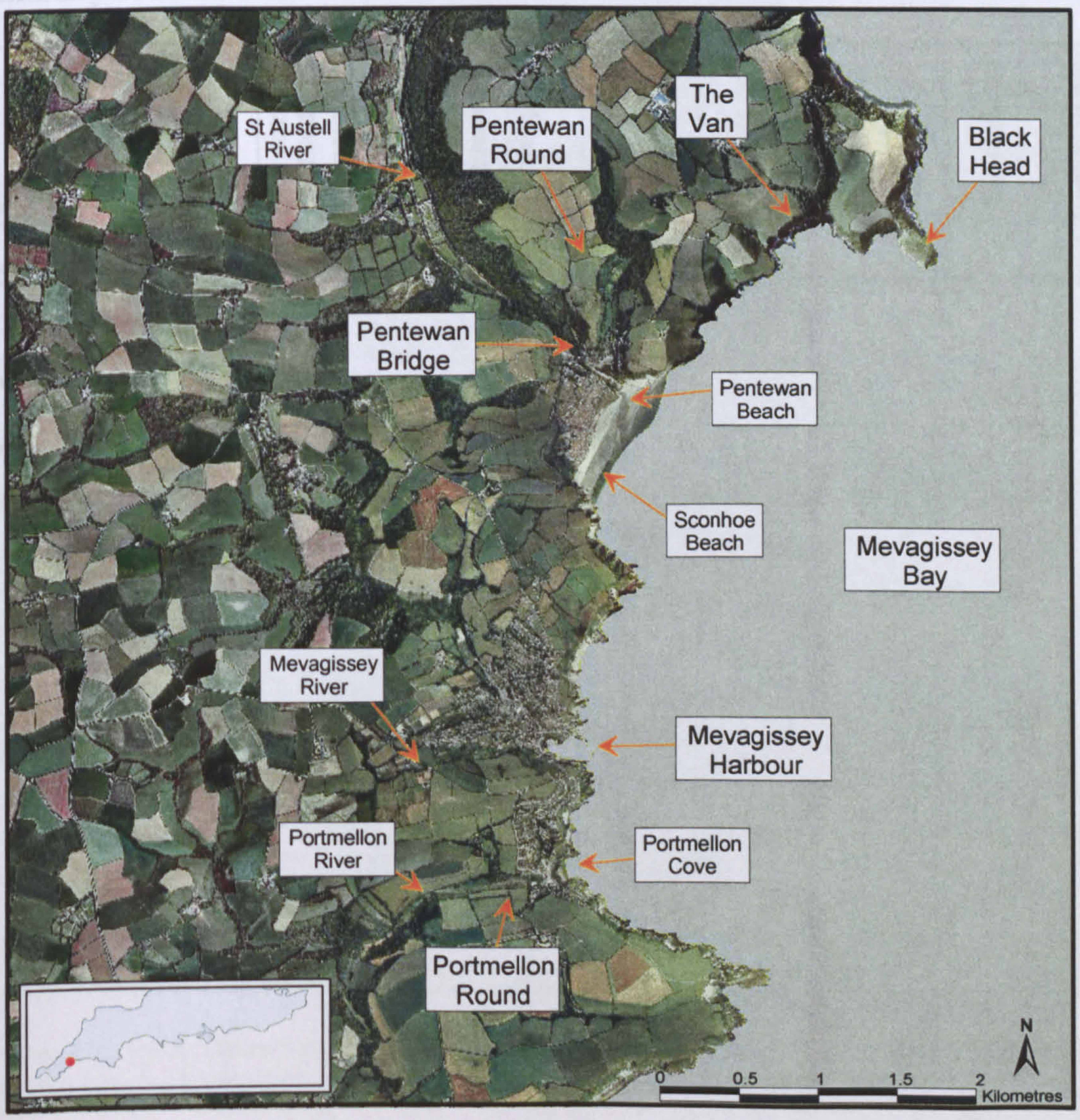


Figure 113: Aerial photograph of Mevagissey Bay showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Black Head promontory fort (CoSMR 24062)
The Van cliff castle (CoSMR 24064)
Prehistoric bridge across the St Austell river in the Pentewan Valley (CoSMR 24071)
Rounds at Pentewan (CoSMR 24070) and Portmellon (CoSMR 24008).

Comments

The coastal hillforts, good inland riverine access, landing points on the coast and sheltered anchorages are traits which match the model proposed for Iron Age coastal nodes. It is possible that Mevagissey Bay was a component in the south-west coasting network.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
36	Mevagissey Bay	x		x	x	x	x				x		x			

Conclusion

'Potential' site

Falmouth (Site 37)

Location

OS NGR: 180600 033500
Falmouth, Mylor, Feock, St Michael Penkevil, Philleigh, St Just-in-Roseland and Gerrans parishes, Cornwall

Physical setting

Falmouth lies on the north-east of Falmouth Bay at the south-western end of Carrick Roads, a large expanse of water fed by four major rivers that lead west, north, and east inland (Penryn river, Restronguet Creek, river Fal (that branches into the Truro and Tresillian rivers) and Percueil river). Falmouth is at the mouth of the Penryn River, opposite St Mawes Harbour. Its southern extreme, the rocky Pendennis Point, juts out into the water sheltering the harbour to the north. The area comprises Devonian rocks (see Edmonds et al. 1975).

Figure 114: Aerial photograph of the Fal Estuary showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

The Cornish SMR lists 34 locations of Iron Age date in the vicinity of Falmouth. These include the cliff castle/promontory fort sites of Pendennis, Roundwood, Rosemullion, St Anthony, and Dingerein Castle. Hut circles and enclosures are listed at Pennance Point (with a hoard of Iron Age coins) and St Just-in-Roseland.

Comments

The waterways leading to the Fal Estuary are lined on the upper slopes of the valleys with enclosures, cliff castles, promontory forts, and groups of hut circles. The entrance to Carrick Roads is marked to the west by Pendennis Castle and to the east by the promontory fort of St Anthony Head. As at the Helford Estuary, these two distinctive sites have commanding views along and across the estuary and its approaches. From the estuary, river routes give extensive access inland to Truro and beyond.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
37	Falmouth	x	x		x	x	x	?	?		x	x	x		x	

Conclusion

'Probable' site

Helford Estuary (Site 38)

Location

Mouth of Helford Estuary OS NGR: 179000 026500

The estuary is fringed by the parishes of Mawnan, Constantine, (Gweek), Mawgan-in-Meneage, St Martin-in-Meneage, Manaccan, St Anthony-in-Meneage, and St Keverne, Cornwall.

Physical setting

The estuary runs for *c.* six kilometres east to west through the Lizard and is fed by Porthnavas Creek, Polwheveral Creek, the Helford river, Frenchman's Creek and Gillan Creek that feeds directly into Gillan Harbour at the southern edge of the estuary mouth. There are various other minor, spring-fed, water courses that make their way to the estuary. The edges of the estuary are marked by small, sandy coves and muddy inlets. The land rises fairly steeply from the water's edge.

The geology of the area is predominantly of the Upper Devonian Veryan formation, with outcrops of some of the earliest materials in the South West peninsula, Old Lizard Head series and Hornblende-Schists to the west (Edmonds et al. 1975, 15-20). The mica, quartz and hornblende elements of these rocks provide identifiable inclusions in the pottery produced from gabbroic clays in this area (Peacock 1988; Harrad 2002).

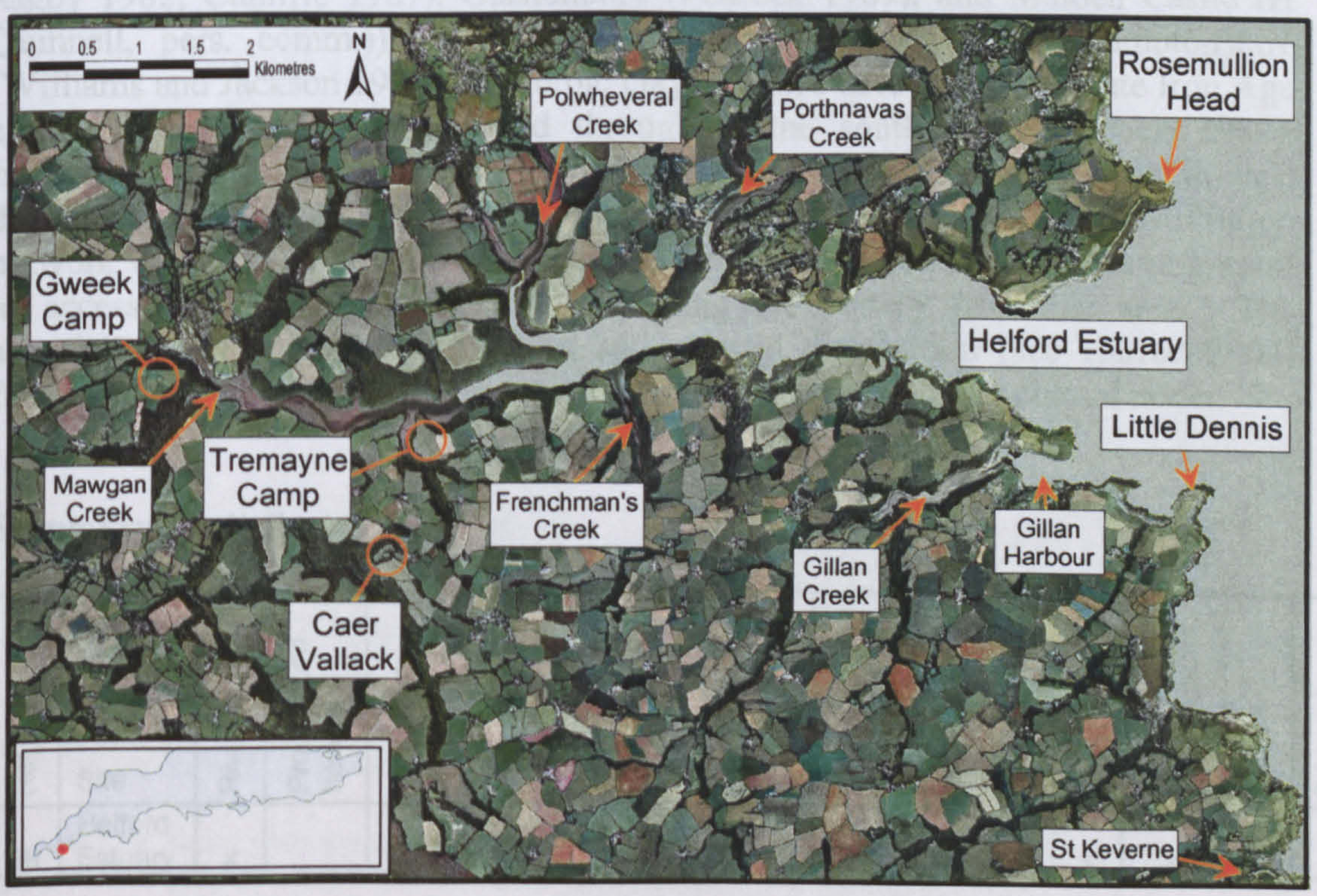


Figure 115: Aerial photograph of the Helford Estuary showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Little Dennis promontory fort at Gillan Harbour and Rosemullion Head cliff castle are respectively on the south and north of the mouth of the estuary and provide 'gateways' to oversee access to/from the estuary and its approaches. Other sites in the vicinity include Tremayne Camp, Caer Vallack and Gweek Camp. The Cornish SMR lists many Iron Age find spots in the parishes at the fringes of the estuary.

Comments

The excellent waterborne access with sheltered landing and mooring points make the estuary a good match with the physical traits model. The name 'Helford' is derived from the Cornish for *heyl*, meaning 'estuary', combined with the English *ford*, possibly referring to the ford over the stream by the river (Padel 1988, 95-6). The location of enclosures, hillforts, promontory forts and cliff castles which overlook the water courses heighten the possibility that it was an important route way in the Iron Age.

The clays of the Lizard are distinguished by their igneous inclusions, particularly of gabbro. Gabbroic clays were extracted from the area of the Helford river system and the coast, for example at St Keverne, to produce pottery from the Neolithic to the Iron Age, as well as in historic periods (H Quinnell, pers. comm.). During the Iron Age, gabbroic clay was used to produce south-western decorated ware (Glastonbury Ware) (Peacock 1969; 1988) which has been recovered from sites throughout southern Britain (for example, Hengistbury Head (Freestone and Rigby 1982; Cunliffe 1987), Glastonbury (Peacock 1969), and Maiden Castle (H Quinnell, pers. comm.)), and as far afield as Weekley in Northamptonshire (Williams and Jackson 1977). Gabbroic clay was also used to produce late Iron Age cordoned wares which are found throughout the south-west (Peacock 1988). Interestingly, pre-Roman conquest cordoned wares always occur with south-west decorated wares (H Quinnell, pers. comm.) suggesting that the same distribution network was used for both forms. It is likely that the Helford Estuary was important in accessing the clay sources and exporting the pottery from the area. The association with ceramic production and onward distribution (see Harrad 2002) further suggest the likelihood that this estuarine area operated as a coastal node.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
38	Helford Estuary	x		x	x	x	x	x	x		x	x	x	x	x	2

Conclusion

'Probable' site

Mullion (Site 39)

Location

Mullion Island at OS NGR: 166100 017600
Mullion parish, Cornwall

Physical setting

The area lies on the west side of the Lizard and comprises sandy beaches at Polurrian and Poldhu Coves. Off shore is the identifiable land mark of Mullion Island. The geology is of the Veryan Series of Upper Devonian rocks (Edmonds et al. 1975, 30) and Mullion Island comprises of pillow lavas (*ibid*, 31).

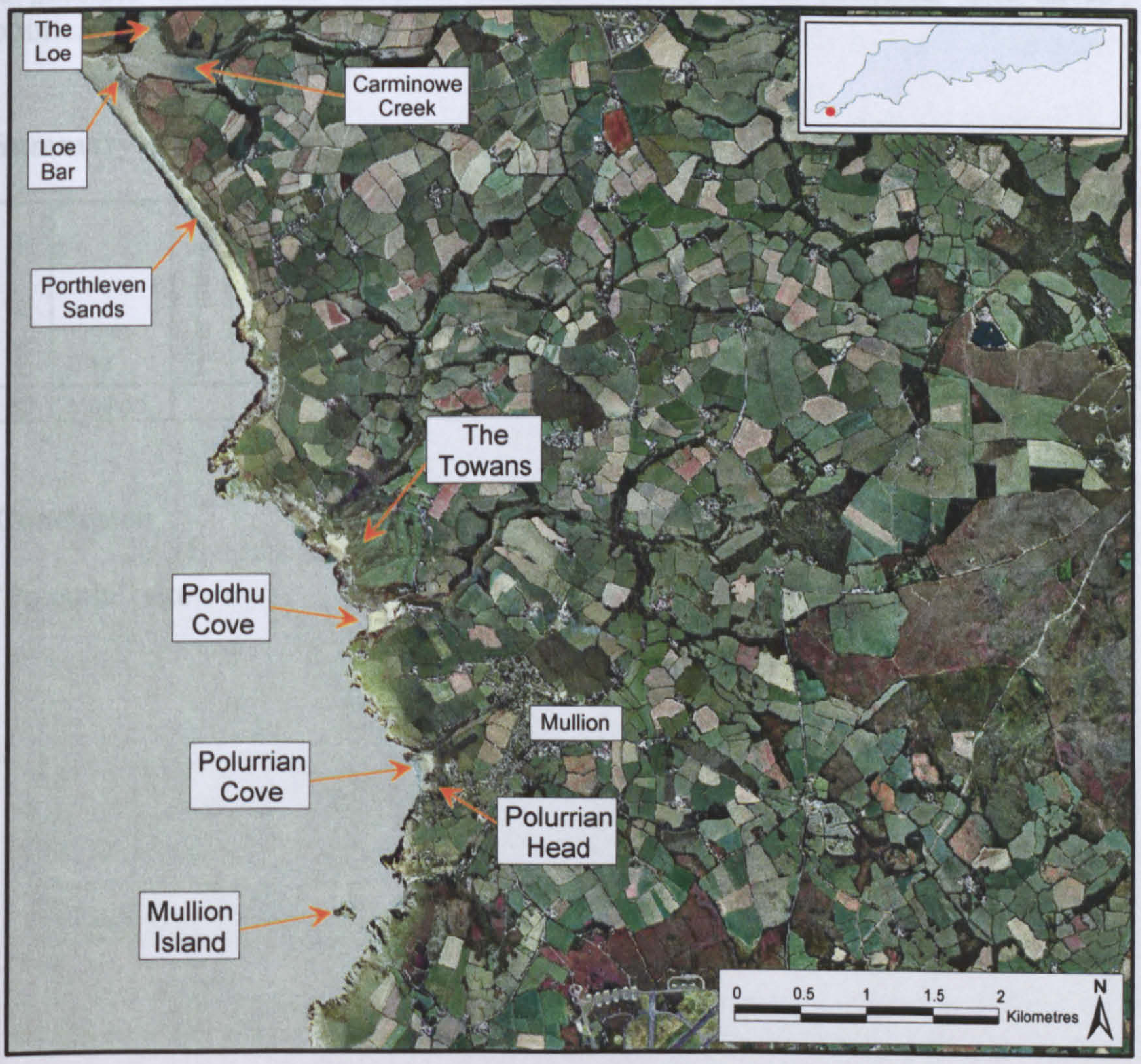


Figure 116: Aerial photograph of Mullion showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

The Towans (also known as Winnianton) (CoSMR 28086), a univallate hillfort, lies immediately north of Poldhu Cove, and a round (CoSMR 10547) and cliff castle (Polurrian Head) (CoSMR 10549) sit above Polurrian Cove.

Comments

Despite facing into the westerly winds, this area, on the edge of the Lizard, offers safe beaching spots with some shelter afforded by the cliff-lined coves and offshore island. About four kilometres north-west of Poldhu Cove, along Porthlevan Sands, is the location, at Loe Bar, where The Loe and Carminowe Creek meet the sea. These bodies of water provide access inland beyond Helston and Culdrose. The hillfort, cliff castle and other sites in the vicinity imply Iron Age use of the area. It is possible that the use included maritime activity at the sheltered 'safe haven' points.

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
39	Mullion			x		x	x			x			x			3

Conclusion

'Potential' site

St Michael's Mount (Site 40)

Location

OS NGR: 151500 029800
Marazion parish, Cornwall

Physical setting

The most westerly 'probable node' site identified in this study focuses on St Michael's Mount, a rounded 'islet' in Mount's Bay that is connected to the mainland by a *c*.0.5 km long low-water causeway. It has a steep southern face and is an easily identifiable point from vessels at sea. The Mount shelters a small, sandy harbour on its northern side (facing the mainland). The north-west sweep of Mount's Bay, from Newlyn to St Michael's Mount, is characterised by sheltered, sandy beaches which would make suitable landing points, whereas immediately to the east of the Mount, the shoreline is rocky and exposed, with steep cliffs in places.

The island is an outlier of killas Devonian material that forms a large expanse of the South West peninsula (Edmonds et al. 1975).

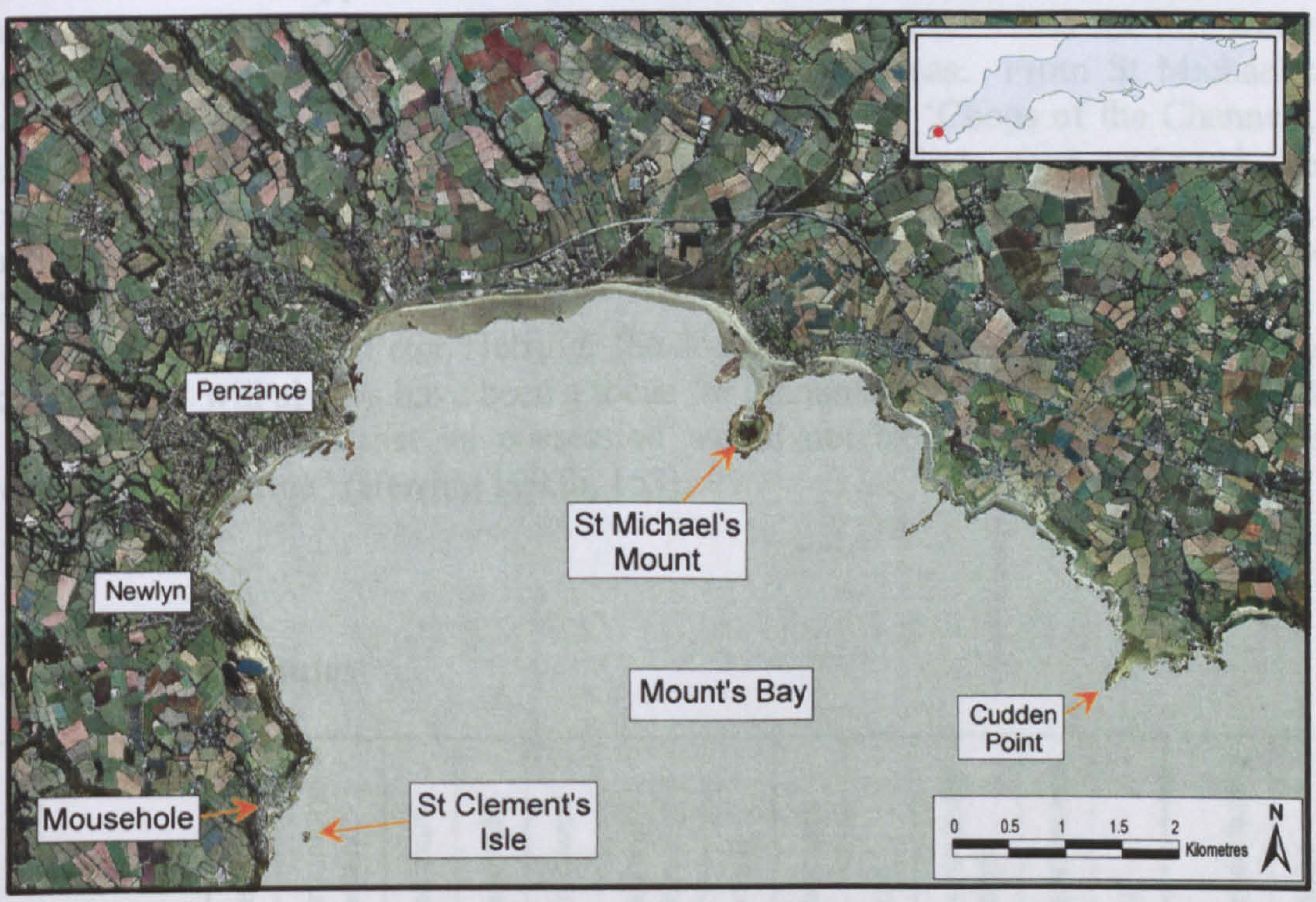


Figure 117: Aerial photograph of Mount's Bay showing the locations of Iron Age elements of the 'coastal node' and other places mentioned in the text (Base image © GetMapping plc).

Archaeology

Despite its prominent location, St Michael's Mount has received "surprisingly little work" (Herring 1993b, 153). There is an Iron Age field system and enclosures at Cudden Point (CoSMR 56236; 56248).

Approximately five kilometres south-west across the Bay is the small harbour of Mousehole with St Clement's Isle *c.*300 m offshore. An Iron Age import was recovered from this area which is totally sheltered from the west (Ordnance Survey 1962).

Comments

It is possible that St Michael's Mount was involved in international trade, supplying south-western minerals to the continent and receiving items in return. This trade role started in the Bronze Age, if not before. The site is one of the candidates for the location of *Ictis*, the causewayed island from which tin was exported into the Mediterranean market network, described by Pytheas.

In the wider area, Penzance (the name of which is derived from the Celtic for 'Holy head' (Ekwall 1960, 363; Padel 1988, 136)) is scattered with megalithic monuments which closely match those of Brittany and Ireland, attesting to over 4000 years of nautical connections. This area of south-west Britain has long been linked with Continental visitors including the Tartessians (from south-west Spain via Brittany), Phoenicians, and Carthaginians, attracted here by the natural tin and other resources. Tin and copper mined in central and northern Cornwall could have been transported overland to the shore of Mount's Bay and thence across the low water causeway to St Michael's Mount prior to dispatch overseas. From St Michael's Mount, tin and other exports were taken by sea across the 'Chops of the Channel', past Ushant to the River Loire. Then, by a combination of sea, river, and road, the British exports would reach the Iron Age Greek colony of Masilia (Marseilles). Such voyages are thought to have been undertaken by the Veneti of western Brittany (Calder 1986, 339-40).

As commented by Peter Herring, the location of the Mount, rising abruptly from the sea, "will always have been a focus for human activity in west Cornwall. It is difficult to imagine that its possession would not have always conferred the greatest local prestige" (Herring 1993b, 153).

Summary of attributes

Ref	Site	River routes	Promontory/ headland	Land mark	Sheltered	Safe haven	Beaching points	Storage	Settlement	Island	River/estuary location	IA enclosures	HGE	IA manufacturing	IA finds	Primary/ Secondary/ Tertiary
40	St Michael's Mount		x	x	x	x	x	?		x		?	x		x	1/2

Conclusion

'Probable' site

APPENDIX TWO

Extract from *The Antiquary* 1910

162 *NOTES OF THE MONTH.*

"Victoria County Histories." He is a Fellow of the Society of Antiquaries, and their secretary since 1908. He is an assistant commissioner of the Royal Commission on Ancient Monuments in England. The buildings which it will be Mr. Peers's duty to look after fall into two classes. One consists of those—such as Hampton Court Palace—which are the absolute property of the Office of Works under the Crown or the nation. The other, by far the larger, consists of those which have been handed over to the Office under the Act of 1882. "They remain," remarked Mr. Peers to a *Daily News* interviewer, "the property of the original owners, but, under the terms of the deed, they may not be touched by the owners without permission. We, on our part, undertake to do all that is needful for their preservation. We are very anxious that all the notable historic buildings in the country should come under the care of the Office of Works, for, although the present owners would not, in many cases, be guilty of vandalism, one never knows into whose hands the property may pass."

In March last portions of a burnt and mud-buried Roman ship were discovered in the harbour near Christchurch. It was thought at first to be a Viking ship, but further excavations having since been made, it is now believed to be Roman. A small incense-cup or vase was found among the burnt timber and sent to the British Museum for examination, with the result that Dr. C. H. Read replied: "The small vase is of Roman date." Altogether, more than twenty articles—iron, bronze, and pottery—have been recovered, with fragments of human remains. The small cup or vase is of bright red ware, and wheel-turned. It was partly broken, but most of the fragments are to hand, and it can be restored. It is one of the smallest incense-cups found in England of Roman make, being $2\frac{5}{8}$ inches in diameter, and $3\frac{1}{2}$ inches high, while the neck is 1 inch long. It is of very graceful outline and proportion. In the *Victoria History of Hampshire* Christchurch is not considered to be a place of Roman occupation, and this is one of the first important authentic finds made belonging to the Roman period, with the exception of a few coins. The site of the discovery is in private grounds, and further results are expected. Recently, twenty Roman coins were unearthed in a garden in Westby Road, Boscombe. They were bronze, of the size known as "third brass," and bore the name of Vespasian.

An interesting discovery was made in March at Smithfield. The *City Press* says that in the process of uncovering the side of the ancient gateway to the church of St. Bartholomew-the-Great, which has been acquired by the parish for preservation, a subsidiary arch has been brought to light, together with the ribs of some vaulting behind. The archway is a discovery in the sense that those responsible for the work did not expect to find it, and is another piece of evidence in favour of the contention of Mr. E. A. Webb that the gateway is all that remains of the western façade of the church of the great Augustine monastery. The arch originally pierced the south-west flanking tower of the west front of the church. The work belongs to the thirteenth century, probably about 1250; and the discovery adds yet more interest to the beautiful fragment of the City's Norman church. Probably—indeed, certainly—the authorities will now proceed to uncover the corresponding archway on the other side.

At the first open meeting of the season at Athens, in March, of the American Archæological School, Professor D. M. Robinson, of Johns Hopkins University, read a short paper dealing with a mould for making terra-cotta statuettes found at Corinth during the excavations of the School in 1908, and representing *en face* the head and bust of the Athena Parthenos of Pheidias. The type is instructive, as it gives us a careful representation of the ornaments on the helmet worn by the goddess, and supplements the evidence on this point given by other smaller copies of similar style, notably the gold medallions from Kertsch now in the St. Petersburg Museum. The expression on the face of Athena is singularly attractive, as shown by a photograph of a cast taken from the mould, and probably comes nearer to representing the expression of the original statue than any

APPENDIX THREE

Geophysical Survey at Hengistbury Head

1 Aim and methodology

1.1 Aim and objectives

The aim of the geophysical survey was to assess the nature and extent of occupation areas surviving in the low-lying zone within the defended promontory of Hengistbury Head to the west of the known settlement area.

The objectives were:

- to determine the extent of occupation areas
- to characterize the internal organization of those areas where possible
- to assess the nature of the topographic setting in relation to the potential tidal inlet and other features.

1.2 Methodology

Hengistbury Head is a Scheduled Ancient Monument so in order to undertake this investigation Scheduled Monument Consent was sought from English Heritage and the application was approved with the issue of a Section 42 License under AMAAA 1979. A thorough desk-based review of published sources and SMR data was undertaken in advance of fieldwork. This highlighted potentially significant areas for survey and provided a context for the interpretation of the results of the geophysical survey.

A Leica System 500 GPS was used to determine the grid structure on the ground, utilizing the OS passive point C1SZ1591 at SZ150910. Two intersecting base-lines were established between 416500,090900–417020,090900 (east–west) and 416620,091000–416620,090800 (north–south) and a grid was marked by stakes at 40m intervals across the entire survey area. As the survey progressed, the intermediate 20 m points were marked by pegs sited using a tape run between the GPS positioned stakes. The base-lines and subsequent survey grids were therefore precisely located on the OS National Grid and can be easily relocated if necessary.

The primary geophysical survey was conducted using a GeoScan FM36 fluxgate gradiometer. As evidence of past occupation and settlement was expected in the form of magnetically enhanced material this was considered the most appropriate method for detecting anomalies. A detailed area survey was established as recommended by English Heritage (1995). A total of 139 20 m x 20 m grids were surveyed (see Figure 20). Readings were taken at 0.5 m intervals along parallel traverses 1.0 m apart. All data were downloaded into GeoPlot 3.0 for processing. The raw data files are retained with other survey information in the archive held at Bournemouth University.

In addition to the primary FM36 survey, a subsequent survey was conducted in February 2003 to investigate an anomaly on the magnetic plot. This was undertaken by two final year students of BSc Archaeology at Bournemouth University, under the supervision of Paul Cheetham and the author (see Grasso 2003; Pearce 2003). Different instruments were used to compare both the readings and effectiveness of the Geonics EM38B ground conductivity/magnetic susceptibility survey instrument, a GeoScan RM15 resistivity meter, and further use of the GeoScan FM36. Two grids of 10 m x 10 m and two grids of 20 m x 20 m were aligned over the original survey grid (Figure 23).

The results of all the instrument surveys were processed in an identical fashion using Geoplot 3.0:

- zero mean traverse
- 2 x 2 low pass filter (to reduce topsoil noise)
- 5 x 5 high pass filter (to reduce the background effect of the underlying geology)
- interpolate Y and interpolate X (to make the plots easier to view).

Interpretation of all the survey data was undertaken by the author and Paul Cheetham. All data processing and filtering was noted in the project document archive. The entire programme was non-intrusive with all indications of work having taken place (such as pegs etc.) removed by the end of the survey.

2 Fieldwork conditions and survey restrictions

The survey was conducted over 24 days between November 2002 and February 2003 in conditions that varied from heavy rain (when survey ceased) to dry and bright. During December there was usually ground frost and the cool air temperature impeded the speed of the instrument's data recording. Windy conditions made steady use of the survey instrument difficult. Most problems arose from large patches of vegetation cover (heather and gorse) that made level surveying impossible and resulted in many incomplete grids. The east of Barnfield is extremely uneven due to many large anthills, some rising abruptly to as much as *c.* 1.0 m above the ground, that again made even use of the instrument difficult.

3 Equipment configurations

GeoScan FM36

Instrument type:	Fluxgate gradiometer	
Grid square size:	20 m x 20 m	10 m x 10 m
Grid squares surveyed:	Primary survey: 139	Further survey: 2
Traverse separation:	1.0 m, parallel	0.5 m, parallel
Reading interval:	0.5 m	0.5 m
Recording method:	automatic encoder	automatic encoder

Geonics EM38B

Instrument type:	Conductivity/magnetic susceptibility meter
Grid square size:	10 m x 10 m / 20 m x 20 m
Grid squares surveyed:	4
Traverse separation:	0.5 m / 1.0 m zig-zag
Reading interval:	0.5 m / 1.0 m
Coil orientation:	horizontal (vertical dipole)

GeoScan RM15

Instrument type:	Resistivity meter
Grid square size:	10 m x 10 m / 20 m x 20 m
Grid squares surveyed:	3
Traverse separation:	0.5 m / 1.0 m zig-zag
Reading interval:	0.5 m / 1.0 m
Electrode config:	twin-probe
Electrode separation:	0.5 m

4 Primary survey results

The conduct of the primary FM36 survey in Barnfield and Longfield was impeded by the ground conditions (see above). These are reflected in the results which give only partial coverage of the area of Longfield and generated a poor response in the central area of the survey grid. However, where survey was possible, both linear and sub-circular anomalies were detected which may be of archaeological interest (see Figures 21 and 22). Typically these present readings of 16 nT against a background of -50 nT. Of particular note are the following:

Anomaly a: a 'U'-shaped anomaly with a very high reading (to 140 nT) abuts the perimeter fence of the Double Dykes earthworks. Each of the three sides is approximately 20 m long. This could be an iron fence foundation, possibly associated with military activity during the second world war. This area is highly contaminated with ferrous material.

Anomalies b, c and d: sub-circular anomalies, *c.*10 m diameter, which may have archaeological potential. The readings are 10 nT against a background of -2 nT. The northern edge of grid I10 (containing anomaly **c**) is within 10 m of a Bronze Age round barrow. It is possible that anomalies in this area might represent features that could be associated with the barrow or contemporary activity.

Anomaly e: a group of parallel linear anomalies was detected running approximately north north east – south south west (average reading 8 nT). These are interpreted as plough marks. However, anomaly **e**^{1} appears more distinct and corresponds with the position of one of Bushe-Fox's excavation trenches (see Figures 18 and 22; Bushe-Fox 1915, Plate 33). No features or finds were recorded from this trench that was over 150 m long.

Anomaly f: linear anomaly running south-east – north-west from grid D2 to C3 with a response of up to 40 nT. Its total length is approximately 80 m. This is on the same alignment as a line, possibly a field boundary, recorded by Bushe-Fox (1915, Plate 33).

Anomaly g: These isolated positive responses in grid K5 align with the plot of Bushe-Fox's excavation 'pits'. Therefore these signals, and those in grid C3, could arise from those investigations (see Figure 18). The archaeological potential of this area should be considered as high.

In Longfield the response is much noisier, particularly in grids X8 and Y8: this may be the results of local geology – ironstone was observed here, close to the harbour edge.

Anomaly h: curvilinear positive anomaly (up to 21 nT) that at times displays a negative edge. This may be interpreted as an ancient ditch, but its position within the active area makes it unclear. It lies very close to the line of a current grass footpath so a further survey was conducted to ascertain whether the response was indeed from the footpath or a potential ditch (see below). Following the further survey it is considered likely to be an ancient subsurface archaeological or geological feature.

Anomaly i: this linear response matches the course of a drainage ditch so is unlikely to be archaeological.

Anomaly j: a series of linear anomalies – three running north-east to south-west, crossed by a longer linear running north-west to south-east. These are not aligned with any recorded paths or trenches so may have archaeological potential. Each of the three parallel anomalies stops short of anomaly **h**.

Anomaly k: highly positive (40 nT) sub-circular anomaly at the south-east corner of grid T6. Given the potential of this area, it was re-surveyed with different instruments for clarification (see below and Chapter 6).

5 Further survey results

EM38b survey (summarized from Grasso 2003)

The raw plot of Grids 1 and 2 (Figure 24a and b) shows a very similar response from both the inphase and quadrature, that remain apparent following processing (Figure 25a and b). The range of readings is small (-2.3 – 1.0 mS/m) probably due to the very dry, sandy, well-drained soil in that area. This may have caused some 'shadowing' of the inphase signal, giving rise to the similarity in the inphase and quadrature plots.

The higher resolution of this survey compared with the primary survey enabled more precise detail to be defined. Both the raw and processed plots show three linear anomalies aligned north-west to south-east. The southern linear in Grid 1 aligns with the anomaly detected in the primary survey; the remaining two align with modern footpaths (see Grasso 2003, Figure 19). This would suggest that the linear anomaly **h** is not aligned with a modern footpath. The alignment of this anomaly matches the edge of the Barnfield inlet shown by Barry Cunliffe (1987, Illustration 6) and is likely to be of high archaeological interest.

The circular anomaly **k** cannot be discerned from either the inphase or quadrature responses.

In Grids 3 and 4 the inphase and quadrature responses are again very similar (Figures 26a and b; 27a and b). Both reveal two linear anomalies running north-west – south-east. The northern linear (north-east corner of Grid 4) aligns with the anomaly detected in the primary survey with a response that suggests it may indeed be a ditch feature. The southern linear (running through both grids) could be a response to the modern footpath on that alignment.

RM15 survey (Summarized from Grasso 2003)

The processed resistance plot (Figure 25c) shows response characteristics which match those detected with the EM38b – linear anomalies which might represent an ancient ditch and modern footpath. However, the high resistance of the northern 'ditch' feature is unusual it was suggested that the use of a resistivity meter was not suitable for the conditions of this survey (P Cheetham, pers. comm.; Grasso 2003).

Grid 3 (Figure 26c and 27c) shows a very different response to that of the EM38b inphase and quadrature plots. The modern footpath is visible with numerous highly resistant anomalies. These have proved difficult to interpret as they do not correlate with either the inphase or quadrature of the EM38b survey (Grasso 2003, 58), although they are in the area of small 'pit-like' excavations by Bushe-Fox (see Figure 18).

Further FM36 survey (Summarized from Pearce 2003)

Two anomalies are visible in both the raw (Figure 24d) and processed (Figure 25d) plots. A linear anomaly runs approximately east – west through the middle of Grid 1. This has a low magnetic response that correlates with the magnetic susceptibility inphase plot of the EM38b (Figures 24a) and may be interpreted as a ditch feature. The second anomaly, in Grid 2, is sub-circular with a diameter of *c.*2.0 m. The responses range from -6.2 nT to 6.5 nT and are consistent with the interpretation of a pit or kiln/hearth feature at this location.

6 Survey summary

Prior to undertaking this survey, the generally unresponsive nature of the sand-based geology was a concern, but the detection of distinct anomalies in Longfield and indications of previous excavation trenches confirm that the techniques used were appropriate to detect subsurface features.

The results of the survey are not as comprehensive as anticipated due to the problems encountered in surveying much of the area, particularly in Longfield. However, the aim of the survey was broadly achieved. It is suggested that the Iron Age settlement area was confined to the shore of the harbour in Longfield, in the lee of Warren Hill. Isolated activity areas were detected in Barnfield, but no evidence to suggest enclosures or the extended 'urban settlement' postulated by Cunliffe (1978, Figure 11). A detailed summary of results of the survey and their interpretation is presented in section 6.4.2 of the main text.

APPENDIX FOUR

Geophysical Survey at Ower Peninsula, Poole Harbour

1 Aim and methodology

Ower Peninsula is located in the south of Poole Harbour, opposite Green Island (Figure 31). It is separated from the island by the channel of South Deep. Two stone and timber structures lead into the channel, one from Green Island, the other from Cleavel Point on the edge of Ower Peninsula. Ongoing investigation has interpreted the structures as jetties[60] (Markey et al. 2002) and provided a middle Iron Age date from the timbers. Previous studies (Woodward 1987a; Cox and Hearne 1991) have determined that a late Iron Age settlement was occupied at Ower Peninsula from *c*.20 BC until the mid-first century AD. This was investigated by geophysical survey in 1979-81 and excavation in advance of pipeline installation by BP (*ibid*).

1.1 Aim

The aim of the survey was to identify any subsurface remains of the southern 'jetty' as it ran to Cleavel Point and/or a track or route leading between it and the known area of settlement. In addition, it was proposed to investigate the intertidal area, beyond the limit of the 1979-81 survey (Woodward 1987a; Cox and Hearne 1991), to determine whether features could be detected past the edge of the known settlement area. One primary question that was unresolved by earlier excavation (Woodward 1987a; Cox and Hearne 1991) was the seaward extent of the settlement site. The northern shore of Ower has altered through processes of marine erosion and more recent accretion of silts and the growth of *spartina* beds. Therefore the likelihood of establishing the total extent the settlement in that direction is low. However, the question remained whether archaeological features could be detected

[60] An alternative interpretation of the structures is provided in this study (see section 7.5.4 of the main text).

beyond what had been considered to be the edge of the settlement in what is now the intertidal zone.

1.2 Method

Three areas were identified as suitable for survey (Figure 43) and the investigation was conducted over four days in 2001 and 2002 by the writer with Paul Cheetham and Roger Doonan of Bournemouth University. Three instruments were used: an FM36 fluxgate gradiometer, an MS2 magnetic susceptibility meter and field coil, and an EM38b electromagnetometer. All data were downloaded into Geoplot 3.0 (with the exception of the magnetic susceptibility results which were manually recorded) for post-survey processing and plot generation.

The survey grids in each area were referenced to perma-peg GIC-1 which had been positioned at 400197.00E, 086079.04N, 1.16 mOD using a Leica system 500 dGPS on 26 September 2000. The reasons for the selection of each area and the methods employed are detailed below.

1.2.1 Area 1

The survey was conducted over a previously uninvestigated area which ran from above the HWM into the area of intertidal mud alongside the water pumping station. The aim was to determine whether the landward line of the southern 'jetty' could be discerned and/or any associated structures or track leading towards it. Geophysical survey had not previously been attempted in this intertidal area of Poole Harbour and the fluctuating salinity of the silts and *spartina* beds made predicting background levels difficult. Two instruments, an FM36 fluxgate gradiometer and EM38b electromagnetic meter, were used. Eight grid squares (each 20m x 20m) were surveyed with the FM36. Four grid squares (each 20m E-W x 10m N-S) were surveyed with the EM38b.

1.2.2 Area 2

This area runs from above the HWM, over the shallow 'cliff' from which late Iron Age and other pottery is eroding, and into the intertidal zone of mud and *spartina*. Three grid squares (each 20m x 20m) were surveyed with the FM36 and EM38b to assess the difference in response between the dry and wet zones and determine whether any anomalies could be detected in the intertidal zone as suggested by a magnetic scan and auger survey undertaken as part of the earlier work at Ower (Woodward 1987a, 47).

1.2.3 Area 3

This area had already been surveyed in 1979-81 (Woodward 1987a; Cox and Hearne 1991; Figures 32 and 33)) using a fluxgate gradiometer, but with a wide traverse interval of 2.0m (Woodward 1987a, 47). The north-east area of the earlier survey was resurveyed with the FM36 over 12 grid squares to determine whether a closer detection interval (in this case, 0.5m reading interval and 1.0m traverses) would produce more detailed results and if further anomalies could be detected in this area. An MS2 magnetic susceptibility meter was also used over 20 grid squares in this area to determine the magnetic characteristics of the topsoil.

2 Fieldwork conditions

The survey was conducted over four days in October 2001 and April 2002. Each day was clear, dry and bright with little wind. The survey in April was timed to coincide with a low spring tide so that the maximum possible area was available for survey into the intertidal zone.

The survey grids were arranged from dry land into the intertidal zone. This meant that much of the survey area was over mud of increasing depth with 'islands' of *spartina* which made it difficult to complete some grids in an even manner. The further north (towards the harbour) the survey progressed, the more saline the conditions became. Above the HWM, the dry land is an open field maintained as pasture. The interface between the dry and wet areas, at the HWM, is marked by a narrow band of mud consolidated with stones and shells and a shallow 'cliff' (*c*.0.4 m high) or step up to the field. Late Iron Age and other (later) pottery sherds are eroding out of the cliff (*ad hoc* work by the writer and D Evans, 2000 - 2004).

3 Equipment configurations

GeoScan FM36

Instrument type:	Fluxgate gradiometer		
	Area 1	Area 2	Area 3
Grids surveyed:	8	3	12
Grid size:	20 m x 20 m	20 m x 20 m	20 m x 20 m
Traverse separation:	1.0 m, parallel	1.0 m, parallel	1.0 m, parallel
Reading interval:	1.0 m	1.0 m	0.5 m
Recording method:	manual logger	manual logger	automatic encoder

Geonics EM38B

Instrument type:	Conductivity/magnetic susceptibility meter	
	Area 1	Area 2
Grids surveyed:	4	3
Grid size:	20 m x 10 m	20 m x 20 m
Traverse separation:	1.0 m, parallel	1.0 m, parallel
Reading interval:	1.0 m	1.0 m
Coil orientation:	horizontal (vertical dipole)	horizontal (vertical dipole)
Recording method:	automatic log	automatic log

Bartington MS2

Instrument type:	Magnetic susceptibility meter
Grids surveyed:	20 (Area 3 only)
Grid size:	20 m x 20 m
Traverse separation:	5.0 m
Reading interval:	5.0 m
Probe/coil:	D field coil
Recording method:	manual record of the median value from five point readings

4 Area 1 results

4.1 FM36 Fluxgate gradiometer survey (Figure 45)

The response shows very little difference through the intertidal zone suggesting that the magnetic enhancement of the muds is fairly uniform.

Anomaly a: (raw plot) is generated by the pumping station which is immediately adjacent to the fence bounding the survey area at that point.

Anomaly b: response generated by the metal perimeter fence of the pumping station area.

Anomaly c: is the response to the 'permapeg' survey station marker.

4.2 EM38b Electromagnetic survey (Figures 46 and 47)

The quadrature response is broadly similar to the inphase, but reveals more detail once processed. The response variations in both sets relate to natural differences in the saline intertidal zone.

5 Area 2 results

5.1 FM36 Fluxgate gradiometer survey (Figure 48)

The results from these grids clearly show the differences in magnetic response between the 'dry land' above the HWM and the intertidal zone. The dry field generated much more extreme readings than the mud. The smaller range of readings in the intertidal zone was probably due to the magnetic signal being 'masked' by the accreted mud and silt.

Anomaly d: a series of discrete positive responses above the HWM which correspond with anomaly l (Area 3) and the responses of the 1979-81 survey (Woodward 1987a, Figure 31A).

Anomaly e: a linear positive response with associated negative on the northern side. This corresponds with the line of the shallow cliff which marks the HWM.

Anomaly f: a linear response in the intertidal zone, which runs *c*.20 m north from the eastern edge of the survey area. The anomaly then turns to the east to run a further 20 m and beyond the eastern corner of the survey area. The response is not detailed enough to offer a specific interpretation, but the presence of a right angled feature in the intertidal zone, beyond the extent of the known settlement area, is of archaeological interest.

5.2 EM38b Electromagnetic survey (Figures 49 and 50)

Both the inphase and quadrature gave very different responses to the dry and intertidal zones. No archaeological features were detected in the dry zone.

Anomaly e: response to the shallow cliff marking the HWM.

Anomaly g: detected by both the quadrature and inphase as an area of higher magnetic susceptibility and conductivity respectively. This area is bounded by anomaly **f** detected by the FM36.

Anomaly h: detected by the inphase as an area of high conductivity. It is on the line of a field path. The compression of the soil along that line would generate such a response.

6 Area 3

6.1 FM36 Fluxgate gradiometer survey (Figure 51)

Anomaly i: a right-angled positive response, also detected in the 1979-81 survey (Figure 32). The response characteristics suggest this is a ditch.

Anomaly k: response of the 'permapeg' survey marker.

Anomaly l: series of discrete positive anomalies which were also detected in the 1979-81 survey (Figure 32).

Anomaly m: linear positive response. Following the 1979-81 survey, this anomaly was plotted as a ditch (Figure 32). However, the present survey suggests instead that it is one of a series of cultivation marks which run parallel with each other through this area (see anomaly **n** below).

Anomaly n: parallel linear positive anomalies running from the field edge inland. The spacing and character of these anomalies suggest they are cultivation marks.

6.2 MS2 Magnetic susceptibility survey (Figure 52)

The plots show a reduction in the levels of topsoil magnetic susceptibility from high responses in the west to low responses in the east of the survey area. The higher levels recorded in the west suggest that the soil has been enhanced by agricultural or other human activities. This area of higher magnetic susceptibility corresponds with anomaly **l** detected with the FM36 as areas of positive magnetic enhancement.

The eastern zone is an open area of very low lying land which gives access to the intertidal zone. It has suffered much denudation of soil (see Figure 44b) due to cattle and people making use of the access point. The removal of the topsoil would generate the difference in response detected across the survey area.

7 Survey summary

Three areas were surveyed on the edge of Ower Peninsula covering areas of known late Iron Age activity and the intertidal zone. The aim of the survey, outlined in section 1.1 above, was broadly achieved. Area 1 was surveyed to determine if any anomalies related to the southern 'jetty' could be discerned. Despite the use of two different instruments (FM36 and EM38b), none could. The implication of this is discussed in section 7.4.1 of the main text. Area 2 was surveyed to assess whether anomalies could be detected beyond what had previously been considered the boundary of the late Iron Age settlement. Both the FM36 and EM38b detected anomalies (**f** and **g**) beyond the boundary, in the intertidal zone. Whilst the anomalies detected by both instruments relate to one another spatially, the results of the geophysical survey do not permit the interpretation of either a function or a date for them although the outline shape and dimensions suggest they represent a straight-sided enclosure. Further work in this area, including excavation, would be useful to determine if the anomaly represents a feature associated with late Iron Age use of the area. Survey in Area 3 provided more detail of the subsurface features and soil characteristics to complement the 1979-81 survey. The additional detail has allowed a reinterpretation of previously identified features and the extent of the settlement area. Further detail and interpretation of the anomalies are presented in section 7.4.1 of the main text.

APPENDIX FIVE

Geophysical Survey at Mount Folly, Devon

1 Aim and methodology

1.1 Aim

The aim of the geophysical surveys was to determine if the cropmarks recorded on the aerial photograph (Figure 66) could be detected by geophysical methods and, if so, to characterise the nature of their response and to determine their position on the ground. It was proposed to use the survey results to inform the excavation planning process.

1.2 Methodology

Geophysical surveys using an RM15 resistance meter and FM36 fluxgate magnetometer were undertaken between 2 and 13 September 2003, with further magnetometry grids surveyed on 30 September and 4 October. The survey grid had been established in advance throughout Ludgate Field using GPS and all points were tied to the Ordnance Survey National Grid so that the survey grid was aligned north – south. Each grid measured 20 m x 20 m. (The further gradiometer survey used the same grids but with a 10m x 10m configuration to account for the higher reading resolution). All machine traverses were east – west across the general slope of the field. The same zero point was used for all the magnetometry surveys, providing a level of uniformity and reducing the possibility of survey errors.

All data were downloaded into GeoPlot 3.0 for processing. The raw data files, processing and filtering notes are kept in the document archive at Bournemouth University. Processing and interpretation of the plots was conducted by the writer.

2 Fieldwork conditions

Ludgate Field was under short grass with no physical obstructions or impediments to the survey. The underlying geology is 'shillet', a form of shale. As it nears the coast in this area it rolls and folds over very short distances from vertical to horizontal bedding planes.

RM15 survey: bright, dry, and calm with occasional breeze from the south-east. The compact and stony soil often made it difficult to insert the remote probes, and the survey in general would have benefited from rain.

FM36 primary survey: bright, calm, and dry, with occasional breeze but nothing of detriment to the survey.

FM36 further survey: damp conditions with frequent rain, often very heavy. This survey was much affected by the strong wind that made level use of the instrument difficult to the extent that the survey often had to cease momentarily or for periods of time to wait for conditions to improve.

3 Equipment configurations

GeoScan RM15

Instrument type:	Resistivity meter
Grids surveyed:	31 (28 available for download)
Grid size:	20m x 20m
Traverse separation:	1.0m zig-zag
Reading interval:	1.0m
Electrode config:	twin-probe
Electrode separation:	0.5m

GeoScan FM36 primary survey

Instrument type:	Fluxgate gradiometer	
Grids surveyed:	Primary survey: 49	Further survey: 8 (6 repeated)

Grid size:	20m x 20m	10m x 10m
Traverse separation:	1.0m, parallel	0.5m, parallel
Reading interval:	0.5m	0.25m
Recording method:	automatic encoder	automatic encoder

4 Resistivity survey: primary results (see Figures 68 and 69)

The resistivity survey was conducted by Bronwen Russell (Bournemouth University) and the writer over 28 full and three partial grids. However, data from three of the full grids were corrupted on download and so are not included in the survey results. The average data reading from the dry ground conditions was 168.8 ohms, with a range of 1253.5 ohms (between the minimum of 37.5 ohms and maximum of 1291.0 ohms). The response was adequate to detect areas of particularly high or low resistance but the dry conditions obscured any subtle variations. In general, the main response was to linear anomalies which retained more moisture (and were detected as areas of low resistance). The anomalies detected were:

Anomaly A: sub-rectangular outline registering low resistance up to 50 ohms. The northern edge is indistinct against the general background readings. This is at the top of the field ridge from which the land slopes rapidly south and west. Any surface and sub-surface moisture would easily drain down slope making this area particularly dry. This anomaly corresponds directly with anomaly **a** on the magnetometry plot (Figure 71) and the northern enclosure on the aerial photograph (Figure 66). It is interpreted as Enclosure One.

Anomaly B: this is not particularly distinct but a linear anomaly running from **B-B** with an angle at **B1** is discernible with low resistance readings between *c.*40 - 85 ohms. This correlates with anomaly **b** on the magnetometry plot and the southern enclosure on the aerial photograph. It is interpreted as Enclosure 2.

Anomaly C: a slight linear response of low resistance runs from within anomaly **A** down slope towards anomaly **B.** Its route passes through the entrance of Enclosure One (that is not discernible on this plot). It is possible that the instrument detected the filled line of a pathway or hollow. It does not align with the geological trend (anomaly **E**) and presents response characteristics different to anomaly **D**. This anomaly was not detected by the magnetometry survey.

Anomaly D: Four low resistance (up to 70 ohms) sinuous anomalies run down slope and merge slightly north of **B1**. These are fairly robust responses and may represent shallow sikes. These are not considered to be archaeological.

Anomaly E: linears running north-east – south-west throughout the majority of the survey area, with a particularly strong high resistance response at **E1** (in excess of 390 ohms). The consistent parallel trends are the responses to the underlying folding shillet geology. As the shillet rolls from horizontal to vertical or occurs nearer the surface, the high resistance response is recorded. **E1** is interpreted as a wider shillet ridge nearer the surface that presents a stronger signal. The proposed watercourse of anomaly **B** can be discerned running over the geology at **B2**.

Anomaly F: a linear anomaly of low resistance (*c.*50 ohms), interpreted as a possible moisture band.

5 Magnetometry survey: primary survey results (Figures 70 and 71)

The readings across the plot range from -196nT – 200nT with the extremes generated by the BT power cable (anomaly **z2**). The mean of all readings is 0.3nT, although the general background presents as a slightly negative response. Fortunately the metal fence in the hedge surrounding Ludgate Field would seem to have had little effect on the survey results as shown by the lack of distortion at the southern edges of grids H3 and I3 that were surveyed as close to the hedge line as practicably possible.

A number of discrete point and linear anomalies were detected in Ludgate Field many of which are likely to be of archaeological interest. The identified anomalies are:

Anomaly a: crisp, sub-rectangular outline of positive readings ranging from *c.*3 - 11nT. A negative halo appears around most of the circuit that is a typical response characteristic generated by the positive readings. The fours sides, each *c.*50m long, are straight and meet at rounded corners. The southern edge (down slope side) has a narrow break of *c.*4m in the circuit; the eastern terminal at the break is bulbous in outline. This anomaly directly matches anomaly **A** on the resistivity plot (Figure 69) and the northern cropmark recorded on the aerial photograph (Figure 66). It is interpreted as Enclosure One.

Anomaly b: an irregular, five-sided anomaly, again crisply outlined with strong positive responses (3 – 17nT). As with anomaly **a**, this is a uniformly positive response with a negative halo that is a typical response characteristic. The five sides are slightly sinuous with both concave and convex form. No break is discernible in the circuit although the eastern side is masked by the responses from anomalies **z1**and **z2**; the northern circuit is overlain in part by the disturbed response of anomaly **h2**. **Anomaly b** correlates with anomaly **B** recorded by the resistivity survey and the southern cropmark on the aerial photograph: it is interpreted as Enclosure Two.

Anomaly c: positive linear anomaly of *c.*4 – 8 nT, running parallel with the north and east sides of anomaly **a**, *c.*8m beyond it. Anomaly **c** parallels the line of anomaly **a** most precisely, including the rounded north-east corner, until near the south-east corner. At that point, several linear anomalies meet and anomaly **c** appears to turn *c.*25° further to the east for approximately 20m. It then abruptly turns to the north-west and its response characteristics become less defined as it runs parallel to anomaly **b**. It is significant to note that anomaly **c** respects and in places parallels both anomalies **a** and **b**; its outline is not as wide, but the signal is as robust and within the same response range. The phasing and relationships at the meeting point with anomaly **l** cannot be discerned through these results and would require excavation to assess with clarity.

Anomaly d: an ovoid arrangement of discrete positive points (2 – 3 nT) within which is a single point with a particularly strong positive response (*c.*5 nT). The oval dimensions are *c.*11m east – west by *c.*8m north – south. At least 11 points define the oval. The lack of negative association with the positive responses suggests that these points represent an arrangement of pits or large post-holes. It is certainly to be considered as a potential feature of archaeological interest within Enclosure One.

Anomaly e: straight, linear anomaly running for over 60m across the width of anomaly **b** on a south-east-east – north-west-west alignment. It displays positive readings of 2 – 8 nT and has an associated negative halo. The western end of this anomaly passes beyond the western corner of anomaly **b**; its eastern end is masked by the response of anomaly **z1** so it cannot be determined whether it lies within or outside of anomaly **b.** The western terminal appears to end at a junction with outer anomaly **t.** The central portion of anomaly **e** is obscured by anomaly **f.** From this geophysical survey it would appear that anomaly **e** continues through and underlies overlies anomaly **f.** The positive response characteristics suggest that anomaly **e** is a ditch cut that has filled with magnetically enhanced material.

Anomaly f: a positive response of irregular outline and discrete points that overlies anomaly **e** within anomaly **b.** The response range is generally 2 – 5 nT. This anomaly appears as a dark shadow on the aerial photograph and was considered to be of some significance given its central location within anomaly **b** and possible relationship with anomaly **e.** It was therefore subject to a further, higher resolution survey (see below).

Anomaly g: a positive response (2 – 6 nT) of irregular outline and discrete points that lies immediately north of anomaly **b.** It has similar form and characteristics to anomaly **f,** but is smaller in size. It is not possible to ascribe definite form nor function but this is considered to represent a potential archaeological feature that would benefit from further investigation.

Anomalies h1 and **h2**: these are areas of disturbed "noise". **h1** runs through the very north of the survey area, immediately off the high ground ridge on the northern, sheltered side. On the ground this area was very broken up by the grazing animals. The responses ranged from -3 – 5 nT. The scattered form of response here and at **h2** suggests some form of dumped material lying beneath the surface. It is possible, particularly at **h2** (response range -7 – 7 nT) that it could be material related to the construction of the track. There is little evidence of other ground contamination with the exception of discrete positive spikes that may represent stray metal objects on or near the surface.

Anomaly i: Approximately 90 m length of linear anomaly that runs across the width of the northern survey area with a response range of 3 – 6 nT. It has a slightly sinuous form. In places some of the disturbed material of anomaly **h1** overlies this linear. It is interpreted as a ditch feature, possibly related to anomalies **c** and **j.**

Anomaly j: this positive linear anomaly presents readings of 2 – 6 nT, and is similar in range and characteristics to anomalies **c** and **i** with which it might be associated. As with those, it is interpreted as a ditch feature. It is possible that all three form the boundaries of a route way or field system (see Chapter Eight).

Anomaly j ends abruptly in grid I10: it is likely that the feature continued beyond that point but, as with other anomalies observed, its response was masked or its characteristics changed and were not detectable by the survey instrument.

Anomaly k: linear anomaly of positive response (2 – 7 nT) that starts in grid K7 and runs south-east for *c.*22m. Approximately 12m along its length, within the area of anomaly **n**, it displays a 90° 'branch' to the south-west. In grid J6 the 'branch' meets the northern corner of anomaly **b**: it is then not possible to determine whether the linear feature ends, overruns or underlies anomaly **b**. It is possible that it continues through the line of anomaly **b** to emerge as, or on the line of, anomaly **t**. **Anomaly k** parallels the route of anomaly **c**, at *c.*6 – 8 m distance, including the sharp corner. The northern end of anomaly **k** ends abruptly close to the line of anomaly **l**. It is a matter of conjecture whether anomaly **k** continues parallel with anomaly **c** to join with anomaly **j**.

Anomaly l1 and l2: l1 is a linear anomaly running south-east – north-west with positive responses ranging from 2 – 6 nT. This anomaly starts and finishes abruptly, as with others it is proposed that the actual feature represented continues in either direction, but was not detected by the survey instrument. It is likely to be a ditch feature that runs through the area of anomaly **n** and into the area defined by anomaly **a**. At the point where anomaly **l1** crosses anomaly **c**, it also forms a junction with anomaly **l2**. **l2** runs at a right angle from **l1** for *c.* 62m until it meets anomaly **c** where it appears to terminate. The phasing and interpretation of these features would be useful to determine via excavation.

Anomaly m: four lines of indistinct positive readings converge at a point in grid J11 immediately south of anomaly **i**. These linears become increasingly weak as they progress south-west down the slope (overall range 0 – 8 nT). They are of a sinuous nature and curve to approximately accord with the geological trend observed on the resistivity plot (Figure 69, anomaly **E**). They are interpreted as the possible course of water lines running down slope beneath the ground surface and as such are natural rather than archaeological features. The southern most line runs through the area defined by anomaly **a** and is masked by anomaly **w**.

Anomaly n: a circular arrangement of positive points (2 – 4nT). This area is to the edge of the noise of anomaly **h2** but would seem to have more form than a fortuitous arrangement of points. The circle is *c.*15 m diameter and is in spatial association with anomalies **k** and **l**. The positive responses, without associated negative readings, suggests that these points are an arrangement of pits or post-holes.

Anomaly o: segmented curvilinear anomaly of 2 – 4 nT running across the southern line of anomaly **a** to meet with anomaly **r** in grid G8. This follows the line of anomaly **D** on the resistivity plot that was interpreted as a sike.

Anomaly p: a series of short linear anomalies including one that exhibits a right angle corner in grid F7. It is not possible to state whether these brief lines of detection are related to each other. They respond with similar characteristics of 3 – 5 nT and the group includes what may be discrete points or even shorter lengths of linear detection.

Anomaly q: curvilinear anomaly (2 – 6 nT) running for *c.*40m to the north-east from the edge of the survey in grid F9. Its sinuous form is cut by anomaly **i**, suggesting that anomaly **q** is of an earlier date. Again, this linear anomaly terminates abruptly in the area of speckled noise (anomaly **h1**).

Anomaly r: discontinuous linear anomaly running into the area bounded by anomaly **a** which overlies this linear. It has positive responses of 2 – 5 nT and follows the line of anomaly **F** on the resistivity plot. That was interpreted as a natural moisture line.

Anomaly s: two potential linear anomalies run approximately south-east – north-west between anomalies **e** and **x**. Their detection and appearance is much affected by the stronger readings of anomalies **t** and **b**; at this point anomaly **b** presents a less positive response than elsewhere along its length. The slight nature of the survey evidence is not sufficient to postulate the particular form or interpretation of these anomalies. As with many of the anomalies detected, the readings range from 2 – 5 nT.

Anomaly t: a pair of linear alignments running parallel with and between anomalies **b** and **c**. The northern linear of the pair has readings of 2 – 5 nT. From the edge of the survey grid it runs for approximately 30m before the readings fade away. The southern linear has stronger readings of 6 – 13 nT – rather more positive than most anomalies detected. The readings run for *c.*16m before seeming to end abruptly. Both of these linears end in areas of undefined, grey resolution (-2 nT) where the expected negative halo from the north-west edge of anomaly **b** should be. It is likely that the effect of the halo cancelled out any positive readings from either or both of the linears, resulting in the grey area displayed. The continued line of the anomaly **t** linears is perhaps indicated by the negative linear running from grid H5 - grid J6 that is probably their negative halo response. It was proposed to clarify the existence of anomaly **t** and its relationship, if any, with anomaly **b**, by excavation.

Anomaly u: indistinct linear of positive (2 – 3 nT) and associated negative (-2 – -4 nT) responses on the southern edge of the survey. The characteristic of positive and associated negative readings suggest this is an archaeological cut feature which has filled with magnetically enhanced material. These responses are similar to those of anomaly **t**. Future survey planned beyond the western edge of the current grid will reveal if there is any spatial relationship or link between the two.

Anomaly v: faint linear response (1 – 3 nT) running north-west from grid H3. This would seem to cross over anomalies **b** and **t** before adopting a more curvilinear form. The low level of the positive responses is in contrast to those detected in many of the other linear forms suggesting that either this represents a deeper feature, or that the material detected has less magnetic enhancement.

Anomaly w: an indistinct area of slightly positive readings (0 – 3 nT). It is of potential significance given its position within the boundary of anomaly **a**, and its location at the point where anomaly **r** changes character. If associated with anomaly **r** that could in turn be a continuation of anomaly **m**, it is likely that this anomaly is of a geological nature.

Anomaly x: discontinuous linear running south-east from the edge of the survey area in grid F7. This line (2 – 3 nT) meets that of anomaly **l2** in grid I5; at that point it changes orientation to run more to the south across anomalies **c** and **t** until it meets anomaly **b**, after which it was not detected.

Anomaly y: circular arrangement of positive points (2 – 6 nT) in the area bounded by anomaly **b**. These are interpreted as potential post holes and might represent a structure within the enclosure.

Anomalies z1, z2, z3, and z4: these are responses to known modern features. **z1** is the line of a stone vehicle track that runs through Ludgate Field. **z2** is the line of a BT power cable. **z3** is the line of an earlier cable. **z4** is the response created by a metal sheep trough at the edge of the field.

6 Magnetometry survey: further survey results (see Figure 72)

In order further to investigate anomaly **f** within Enclosure Two, a higher resolution survey over grids J4 and J5 was undertaken. The grids were sub-divided each into four 10m x 10m smaller grids to facilitate the higher resolution survey of 0.25m reading interval along 0.5m parallel traverses. Two attempts were made. The first covered the full set of eight 10m x 10m grids (Figure 72) but this yielded unsatisfactorily distorted data. The second attempt covered only six of the eight small grids, but with much better results. Both sets of results have been presented for a complete record of the survey and as each shows the anomalies in slightly different ways. Readings from the second attempt are referred to in the following detail. The average data reading from that survey was 0.04 nT, with a range of 45.4 nT between the maximum reading of 40 nT, and minimum of -5.4 nT.

Anomaly e: this corresponds with the linear anomaly **e** detected in the primary survey. Here though it can be observed entering the circular configuration of the anomaly **f** components, although there is still a lack of continuity to the line near the centre of the feature. Readings along its length vary from -1.0 – 4.1 nT.

Anomalies f1, f2, and f3: these three discrete anomalies lie within the circular configuration. They were recorded as positive responses of 5.7 nT, 4.0 nT, and 5.2 nT respectively. The lack of negative association suggests that they represent cut features such as pits that have filled with enhanced material.

Anomaly f4: although this appears as a similar size to anomalies **f1, f2, and f3,** the positive response (5.4 nT) has an associated negative response of -5.2 nT. This is more indicative of a feature that has been affected by extreme heat, such as a kiln, hearth, or furnace, or a cut feature that has been filled with heat-affected material. The responses from all these anomalies suggest that they are not deeply buried, but are close to the current ground surface.

Anomaly f5: this sub-circular anomaly appears more clearly on the primary survey plot, but is still evident at the higher resolution. Little detail is added though other than the confirmation that anomaly **e** appears to run at least part way into the area of anomaly **f5**.

All the features represented by the anomaly **f** group are within a roughly circular configuration, outlined by the faint response observable in all three survey plots.

A summary of the results and their interpretation is presented in section 8.5.2 of the main text.

APPENDIX SIX

Pottery from Mount Folly, Bigbury, Devon
by Roger Taylor BSc PhD, Exeter

The following petrological report on the pottery recovered from excavation at Mount Folly in 2003 was prepared for the writer by Dr Roger Taylor, and appears as an appendix to this thesis with his permission. Thin-sections of items f010 and f2021 were prepared by the writer, Rob Haslam and Professor Timothy Darvill at Bournemouth University.

Seven sherds were found in two trenches excavated at Mount Folly. Each sherd is reported on below.

f010 (Trench 1, F001)

Small body sherd, thin, weakly oxidised outer surface with dark grey, reduced core and inner surface.

Temper: c. 20%

Quartz – Colourless, clear to translucent, angular, and sub-angular slightly abraded grains. Size variable up to 1.5 mm.
Feldspar – Translucent pale yellowish angular to sub-angular grains some showing cleavage planes. Up to 1 mm.
Tourmaline – Black vitreous angular grains of schorl, one striated and crystalline. Size 0.3-0.75 mm.
Composite grains – Angular, quartz tourmaline and quartz feldspar, up to 1 mm.
Mica – Biotite – A scatter of brown cleavage flakes 0.2-0.75 mm.
Muscovite – Rare colourless, silvery, cleavage flakes up to 0.5 mm.

Thin section
Quartz – Angular, rarely sub-rounded. Less than 0.1 –1.2 mm
Feldspar – Cloudy sericitised angular untwinned grains probably orthoclase. Up to 1 mm.
Biotite –
Tourmaline – Angular grains of schorl, pleochroic brown to dark blue. *c.*0.1 mm.
Composite – Angular, feldspar-quartz, feldspar-quartz-tourmaline.

Comment
A typical granite derived temper. The black tourmaline schorl is a common and distinctive minor component of the granites of SW England.

f0015 (Trench 1, F002)

Very small body sherd, reduced, dark grey.

Temper: Content not estimated (sherd too small and reduced).

Quartz – Angular grains 0.2-0.3 mm.
Mica – Brown cleavage flakes of biotite 0.1-0.2 mm.
Rock fragments – Grey, angular tabular fragments of micaceous hornfels seen. One sub-rounded. 1.2, 1.5 and 2.2 mm.

Comment
The temper is difficult to determine because of the dark reduced state of the sherd. Many of the mineral grains are coated with a dark film. However the sufficient can be seen to indicate a granite-derived temper with country rock fragments.

f2006 (Trench 2)

Small rim sherd; reduced, dark brownish grey.

Temper: Content not estimated, temper too fine-grained.

Quartz – Mainly angular grains 0.1 mm or less with a few very well rounded polished grains up to 0.3 mm.
Mica – A scatter of colourless flakes of muscovite 0.1 mm or less.

Comment
The very fine and uniform grains size and restricted mineralogy of the temper associated with some well rounded and polished grains suggest an estuarine source for the tempering sand. Well-rounded and polished grains are indicative of a shoreline source. Some shoreline sand can be swept into estuaries by tidal action. With the Erme estuary nearby this ware could be of very local manufacture.

f2021 (Trench 2)

Body sherd fragments; reduced, dark brownish grey.

Temper: 5-10%

Rock fragments – Grey to buff tabular sub-rounded fragments of micaceous slate up to 1 mm.
Quartz – Transparent to translucent angular grains, up to 1 mm. One well-rounded 1mm grain.
Feldspar – White to translucent angular grains, some soft and altered some showing cleavage. Up to 1 mm.
Mica – Brown biotite flakes, 0.1-0.75 mm.

Thin section
Rock fragments – Angular elongated grains of micaceous slate, siltstone, 0.2-1.1 mm.
One rounded fragment of an altered basic igneous rock (basalt) consisting of laths of feldspar and biotite, 0.5 mm.
Quartz – Angular grains 0.1-0.5 mm.
Feldspar – Angular cleaved grains, up to 0.4 mm.
Mica – Laths/flakes of biotite, pleochroic from light to dark brown 0.1-0.3 mm.

Comment
A granite-derived temper with sedimentary rock fragments as the dominant component and relatively sparse feldspar. Source probably some distance from the granite margin. Basic volcanic rocks crop out south of the Dartmoor Granite.

f2022 (Trench 2)

Body sherd, reduced, very dark brownish grey.

Temper: Content not estimated.

Quartz – Transparent to opaque white angular grains, up to 1.2 mm. Two larger sub-rounded vein-quartz grains 2.3 mm.
Feldspar – Clear angular grains some showing cleavage, up to 0.75 mm.
Mica – A scatter of brown flakes up to 0.3 mm.
Rock fragments – Grey tabular slate fragments, up to 1 mm.

Comment
A granite-derived temper. Many of the grains have a dark coating and are difficult to determine

f2023 (Trench 2)

Body sherd fragments; reduced dark brownish grey. Outer surface coated black, possibly burnished.

Temper: 5-10%

Quartz – Transparent to translucent colourless angular grains, up to 1.25 mm.
Feldspar – White and translucent
Mica – Brown flakes of biotite 0.1-0.3 mm.
Rock fragments – Grey to buff, tabular sub-rounded slate fragments, up to 1 mm.

Comment
A granite-derived temper.

f2036 (Trench 2)

Small body sherd, weakly oxidised, brownish.

Temper: c. 15%

Quartz – Colourless to pale yellow transparent angular grains up to 0.75 mm.
Rock fragments – Buff to silvery light grey, angular elongated fragments of slate and slaty hornfels, 0.75-1.5 mm.
Mica – Brown flakes of biotite 0.2-0.6 mm. Sparse flakes of muscovite up to 0.2 mm.
Feldspar – White opaque and some clear angular grains up to 0.75 mm
Tourmaline – Sparse black to translucent brown angular grains 0.1-0.2 mm

Comment
A granite derived temper with micaceous slate/hornfels fragments quite common. Temper from a stream sediment source outside the granite margin.

General Comment

The sherds were examined with a binocular microscope at magnifications up to x20, and the thin sections with a petrological microscope from x100 – x400.

The term granite-derived is used to define tempers that contain minerals derived from a granitic source, such as the Dartmoor Granite, but in which the proportions of the minerals present are not those found in the original granite. Generally the feldspars, particularly plagioclase, and the brown mica biotite, the least stable minerals, are depleted as they are moved further from their source.

The presence of country rocks such as hornfels and slate indicate the source of the temper sand was outside the granite margin. Quartz is the dominant temper in all these sherds with rock fragments becoming important in some. In typical SW England granite, Feldspar comprises *c.* 60%, Quartz *c.* 30%, and other minerals *c.* 10%.

Most granite-derived tempers appear to stream or river sands. Tempers composed of *in situ* weathered granite or of crushed granite are quite rare. As the Dartmoor Granite is only 13 km north of the site, it is probable that the streams or rivers draining the granite were the source of the temper and that all these wares were made locally. Only f2006 is an exception to the granite derived classification.

The Middle Devonian slates which have an east-west outcrop south of the Dartmoor granite weather to plastic clays. It is possible that this was the source of the clay used. The Middle Devonian slates are quarried for brick making in the South Hams (Steer Point).

Unfortunately the granite-derived tempers from SW England have a wide time-range, Bronze Age to Medieval, and are not of much value for assigning ages to pottery.

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