



Isles of Scilly Historic Environment Research Framework

Resource Assessment and Research Agenda



Historic Environment Projects



Isles of Scilly Historic Environment Research Framework

Resource Assessment and Research Agenda

Client	English Heritage
Report Number	2012R070
Date	18/12/2012
Status	Final
Report author(s)	Charles Johns (ed)
Checked by	Andrew Young
Approved by	Dave Hooley

Historic Environment, Cornwall Council
Kennall Building, Old County Hall, Station Road, Truro, Cornwall, TR1 3AY
tel (01872) 323603 fax (01872) 323811 E-mail hes@cornwall.gov.uk
www.cornwall.gov.uk

Acknowledgements

This study was commissioned by English Heritage; with contributions from the Isles of Scilly AONB Unit, the Council of the Isles of Scilly and the Duchy of Cornwall.

Kathy Perrin, formerly Local Authority Historic Environment Liaison, English Heritage, provided advice and guidance during the early stages of the project which was continued by the Project Advisory Group and the many contributors, who are listed and acknowledged in the report. The English Heritage Project Assurance Officers were Helen Keeley and Dave Hooley.

Within Historic Environment, Cornwall Council, the Project Manager was Charles Johns, Jane Powning produced the distribution maps and Bryn Tapper, Pete Dudley and Francis Shepherd produced the sea-level rise maps.

The views and recommendations expressed in this report are those of Historic Environment Projects and are presented in good faith on the basis of professional judgement and on information currently available.

Freedom of Information Act

As Cornwall Council is a public authority it is subject to the terms of the Freedom of Information Act 2000, which came into effect from 1st January 2005.



Historic Environment, Cornwall Council is a Registered Organisation with the
Institute for Archaeologists

Cover illustration

Bant's Carn entrance grave, St Mary's, Isles of Scilly (photo: Cornwall Council)

© English Heritage 2012

No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without the prior permission of the publisher.

Contents

1	Executive summary	15
2	Introduction to the Project and the Islands	17
2.1	Introduction to the Project	17
2.1.1	Project background	17
2.1.2	Aims and objectives	17
2.1.3	Methodology	17
2.1.4	Note on radiocarbon dates in this report	18
2.2	Introduction to the Islands	19
2.2.1	Geology	19
2.2.2	Topography	20
2.3	History of local government in the Islands	22
2.4	Tenure	23
2.5	Past and present work in Scilly	23
2.5.1	Antiquarians and archaeologists	23
2.5.2	Geophysical survey	26
2.5.3	Environmental studies	27
2.5.4	Osteological faunal remains	27
2.5.5	Submergence studies	28
2.5.6	Maritime	29
2.5.7	Unpublished fieldwork	29
2.6	Sources	29
2.6.1	Published sources	29
2.6.2	Cartographic sources	30
2.6.3	Pictorial sources	31
2.6.4	Photographic sources	31
2.7	Historic Environment designations	32
2.7.1	World Heritage Sites	32
2.7.2	Scheduled Monuments	32
2.7.3	English Heritage Guardianship sites	32
2.7.4	Listed Buildings	34
2.7.5	Registered Parks and Gardens	34
2.7.6	Registered Battlefields	34
2.7.7	Protected Wrecks	34
2.8	Other Designations	35
2.9	Other English Heritage National Programmes	35
2.9.1	Extensive Urban Surveys	35
2.9.2	Rapid Coastal Zone Assessment Surveys	36
2.9.3	Historic Landscape Characterisation	36
2.9.4	Historic Seascape Characterisation	36
2.9.5	National Mapping Programme	36
2.10	Air photographs and LIDAR	36
2.11	Portable Antiquities Scheme	36
2.12	Historic Environment Records	36
2.12.1	The Cornwall and Scilly Historic Environment Record	36
2.12.2	The National Monument Record	37
2.12.3	The United Kingdom Hydrographic Office	37
2.13	Museums and archives	37
2.13.1	The Isles of Scilly Museum	37

2.13.2	The Royal Cornwall Museum	38
2.13.3	Other archives	39
2.14	Approaches to the study of the historic environment of islands	39
3	Palaeolithic and Mesolithic	42
3.1	Introduction	42
3.2	Palaeolithic (c 700,000 – 10,000 BP)	42
3.2.1	Landscape and environmental background	42
3.2.2	Palaeolithic archaeology	42
3.2.3	The Isles of Scilly resource: aspects and prospects	43
3.3	Mesolithic (c10,000-6000 BP)	44
3.3.1	Landscape	44
3.3.2	Environmental background	45
3.3.3	The Isles of Scilly resource: aspects and prospects	46
3.3.4	Animals	47
3.3.5	Transport	48
3.4	Scientific dating	48
3.4.1	Radiocarbon dates	48
3.4.2	OSL dating	51
4	Neolithic and Early Bronze Age	52
4.1	Introduction	52
4.2	Chronology	52
4.3	Environmental background	52
4.4	Landscape	55
4.4.1	The landscape context of monuments	55
4.4.2	The appropriation of natural topographic features	57
4.4.3	Settlement	58
4.5	The material world	59
4.5.1	Material culture	59
4.5.2	Material extraction and artefact production	59
4.5.3	Art	64
4.5.4	Subsistence	64
4.5.5	Transport	64
4.6	Social relations	66
4.7	Monumentality, ritual and burial	66
4.7.1	Entrance graves	66
4.7.2	Cairns and cists	70
4.7.3	Standing stones and stone rows	71
4.7.4	Pits	73
4.8	National and international context	74
4.8.1	Introduction	74
4.8.2	The Mesolithic/Neolithic transition	74
4.8.3	Continuing Neolithic and Early Bronze Age maritime connections	74
4.8.4	Diet and tasksapes	75
4.8.5	Summary	76
4.9	Scientific dating	76
4.9.1	Radiocarbon dates	76
4.9.2	OSL dating	78
5	Later Bronze Age and Iron Age	79

5.1	Introduction	79
5.2	Environmental background	79
5.3	Middle and Late Bronze Age (1500 – 800 BC)	81
5.3.1	Chronology	81
5.3.2	Landscape	81
5.3.3	Settlement	81
5.3.4	Field systems	84
5.3.5	The material world	86
5.3.6	Subsistence	89
5.3.7	Transport	92
5.3.8	Social relations	93
5.3.9	Ritual and religion	93
5.4	The Iron Age (c 800 BC – AD 43)	94
5.4.1	Chronology	94
5.4.2	Landscape	94
5.4.3	Settlement	96
5.4.4	Field systems	96
5.4.5	Cliff castles	96
5.4.6	The material world	97
5.4.7	Subsistence	99
5.4.8	Transport	100
5.4.9	Ritual and burial	100
5.5	Human osteological remains	102
5.6	Scientific dating	103
5.6.1	Radiocarbon dates	103
5.6.2	OSL dating	106
5.6.3	Magnetic dates	107
6	Romano-British (AD 43 – 410)	108
6.1	Introduction	108
6.2	Landscape and environmental background	108
6.3	Chronology	109
6.4	Settlement	109
6.5	The material world	110
6.5.1	Metalwork	110
6.5.2	Glass and amber	114
6.5.3	Ceramics	114
6.5.4	Bone	116
6.5.5	Flint and stone	116
6.6	Subsistence	116
6.7	Transport	116
6.8	Social relations	117
6.9	Religion and ritual	117
6.10	Scientific dating	118
6.10.1	Radiocarbon dates	118
6.10.2	OSL dating	119
7	Early medieval (410 – 1066)	120
7.1	Introduction	120
7.2	Landscape and environmental background	120

7.3	Chronology	121
7.4	Settlement	121
7.5	The material world	121
7.5.1	Metalwork	121
7.5.2	Glass	121
7.5.3	Pottery	121
7.5.4	Worked bone	125
7.5.5	Flint	126
7.5.6	Industry	126
7.5.7	Subsistence	126
7.6	Transport	128
7.7	Social relations	128
7.8	Religion and ritual	128
7.8.1	Chapels and hermitages	129
7.9	Human osteoarchaeology	132
7.10	Discussion	133
7.11	Scientific dating	133
7.11.1	Radiocarbon dates	133
7.11.2	OSL ages	135
8	Medieval (1066 – 1547)	136
8.1	Introduction	136
8.2	Landscape and environmental background	136
8.3	Chronology	137
8.4	The material world	137
8.4.1	Settlement	137
8.4.2	Subsistence	138
8.4.3	Artefacts	139
8.5	Communications, transport and trade	141
8.5.1	Shipping	141
8.5.2	Pirates and lawlessness	142
8.6	Social life	143
8.7	Religion and ritual	144
8.7.1	St Nicholas Priory	144
8.7.2	Churches and chapels	145
8.8	Human osteological remains	148
8.9	Defence and warfare	148
8.10	Scientific dating	149
8.10.1	Radiocarbon dates	149
8.10.2	OSL dating	149
9	Post-medieval and modern (1547-present)	150
9.1	Introduction	150
9.2	Environment and landscape	150
9.3	Material culture	152
9.3.1	Ceramics	152
9.3.2	Other artefacts	153
9.3.3	Building materials	154

9.4	Identities	155
9.5	Food production	156
9.5.1	Farming	156
9.5.2	Fishing	158
9.6	Settlement	159
9.6.1	Introduction	159
9.6.2	The traditional post-medieval buildings of Scilly	160
9.6.3	The historical development and topography of Hugh Town	169
9.6.4	The Samson buildings	175
9.7	Designed landscapes	177
9.8	Transport and communications	178
9.8.1	Shipping	178
9.8.2	Navigation and pilotage	182
9.8.3	Packets and passenger boats	183
9.8.4	Maritime infrastructure	184
9.8.5	Telegraph and telephones	187
9.8.6	Air travel	187
9.9	Technology and production	188
9.9.1	Stonecutting	188
9.9.2	Limeburning	188
9.9.3	Kelp industry	189
9.9.4	Shipbuilding	189
9.9.5	Tin	191
9.9.6	Flower industry	191
9.10	Trade and interaction	191
9.10.1	Piracy and privateering	191
9.10.2	Smuggling	191
9.10.3	The nineteenth century Scillonian merchant fleet	192
9.10.4	Tourism	192
9.11	Religion and ritual	193
9.11.1	Anglican	193
9.11.2	Methodist	193
9.11.3	Baptist	193
9.11.4	Roman Catholic	193
9.11.5	Institutional ritual	194
9.12	Social provision	194
9.12.1	Water supply, sewerage and drainage	194
9.12.2	Heat, light and public power supply	194
9.12.3	Waste disposal, burial and cremation	194
9.12.4	Dealing with poverty, sickness and disability	194
9.12.5	Emergencies and law and order	196
9.12.6	Education and learning	197
9.12.7	Recreation and leisure	197
9.13	Defence and warfare	197
9.13.1	Fortifications	198
9.13.2	Flying Boat stations	199
9.14	Scientific dating	200
9.14.1	Radiocarbon dates	200
9.14.2	OSL dating	200
10	A Research Agenda for the historic environment of the Isles of Scilly	201
10.1	Introduction	201

10.2	Research Themes and Aims	201
10.2.1	Methodology	201
10.2.2	Science	213
10.2.3	Settlement	216
10.2.4	Maritime	219
10.2.5	Production and trade	220
10.2.6	Social Relations	225
10.2.7	Religion and Ritual	225
10.2.8	Defence and Conflict	227
10.3	Appendix: Research themes and aims by period	229
11	References	238
11.1	Primary sources	238
11.2	Publications	241
11.3	Websites	263
12	Project archive	263

List of Figures

Fig 2.1	Location map – the Isles of Scilly
Fig 2.2	Areas of the five largest islands
Fig 2.3	The Isles of Scilly
Fig 2.4	Map of the Isles of Scilly Wildlife Trust’s holding
Fig 2.5	All sea-level data for Scilly
Fig 2.6	Map of Scilly c 1585
Fig 2.7	Distribution of Scheduled Monuments in the Isles of Scilly
Fig 2.8	Distribution of Listed Buildings in Scilly
Fig 2.9	The Little Gannick or Wheel Wreck
Fig 2.10	Distribution of NMR records for the Isle of Scilly
Fig 3.1	The penknife point from Scilly
Fig 3.2	Distribution of Palaeolithic and Mesolithic sites recorded in the HER
Fig 3.3	Inferred submergence model c 7000 BC
Fig 3.4	Mesolithic submerged forest in St Mary’s Roads
Fig 3.5	Detail from the cliff section at Old Quay, St Martin’s
Fig 3.6	List of Palaeolithic and Mesolithic radiocarbon dates
Fig 3.7	List of Palaeolithic and Mesolithic OSL ages
Fig 4.1	Inferred submergence model c 4000 cal BC
Fig 4.2	Inferred submergence model c 2500 cal BC
Fig 4.3	Distribution of Neolithic sites recorded in the HER
Fig 4.4	Distribution of entrance graves and cairns in Scilly
Fig 4.5	Buzza Hill entrance grave and Hugh Town
Fig 4.6	Possible propped stone on Gugh
Fig 4.7	Neolithic axe or adze found on the west shoreline of Bryher

- Fig 4.8 The 'Giant's Grave', Porth Hellick, St Mary's
- Fig 4.9 Plan of cairns on Shipman Head Down, Bryher
- Fig 4.10 Standing stones on Gugh and Mount Flagon, St Mary's
- Fig 4.11 Field boundary and the possible stone row on Par Beach, St Martin's
- Fig 4.12 List of Neolithic and Early Bronze Age radiocarbon dates
- Fig 4.13 List of Neolithic and Early Bronze Age OSL ages
- Fig 5.1 Bronze Age sites recorded in the HER
- Fig 5.2 Inferred submergence model c 2500 BC
- Fig 5.3 Sketch reconstruction of the settlement at Nornour
- Fig 5.4 Excavation of a Late Bronze house at Higher Town, St Agnes
- Fig 5.5 Field boundary on Gugh
- Fig 5.6 The intertidal stone walls on Samson Flats
- Fig 5.7 The St Agnes 'boatsherd'
- Fig 5.8 Inferred submergence model c 700 BC
- Fig 5.9 Distribution of Iron Age and Romano-British sites recorded in the HER
- Fig 5.10 Reconstruction of the Iron Age/Romano-British settlement on Bryher
- Fig 5.11 Giant's Castle on St Mary's in the early twentieth century
- Fig 5.12 The Bryher sword and mirror
- Fig 5.13 The Iron Age sword and mirror cist burial at Hillside Farm, Bryher
- Fig 5.14 The statue menhir from St Martin's
- Fig 5.15 List of Later Bronze Age and Iron Age radiocarbon dates
- Fig 5.16 List of Later Bronze Age and Iron Age OSL ages
- Fig 5.17 Details of magnetic and chronological data from Little Bay, St Martin's
- Fig 6.1 Iron Age and Romano-British sites recorded in the HER
- Fig 6.2 Courtyard house at Halangy Down
- Fig 6.3 Sea leopard brooch from Nornour
- Fig 6.5 Comparison of coins from Trevelgue, Carvossa and Nornour
- Fig 6.5 Roman altar from Mount Holles
- Fig 6.6 List of Romano-British radiocarbon dates
- Fig 6.7 List of Later Romano-British OSL ages
- Fig 7.1 Early medieval sites recorded in the Cornwall and Scilly HER
- Fig 7.2 E ware from East Porth, Samson
- Fig 7.3 Inscribed tombstone in Tresco Abbey Gardens
- Fig 7.4 Two of the Early Christian burials from Tean
- Fig 7.5 St Helen's chapel
- Fig 7.6 Possible stone font from East Porth, Samson
- Fig 7.7 Olaf Tryggvason and the soothsayer
- Fig 7.8 List of early medieval radiocarbon dates

Fig 7.9 List of early medieval OSL ages

Fig 8.1 Inferred submergence model c 1066

Fig 8.2 Distribution of medieval sites recorded in the HER

Fig 8.3 The medieval quay at Old Town

Fig 8.4 William Borlase's drawing of the ruins of St Nicholas

Fig 8.5 Priors of Scilly

Fig 8.6 Borlase's drawing of the arches in St Helen's Church

Fig 8.7 Plan of the St Helen's ecclesiastical complex

Fig 8.8 Ennor Castle

Fig 8.9 List of medieval radiocarbon dates

Fig 9.1 Post-medieval sites recorded in the HER

Fig 9.2 Inferred submergence model c 1540

Fig 9.3 An early nineteenth-century reproduction of a 1669 view of Hugh Town

Fig 9.4 William Borlase's depiction of Hugh Town in 1752

Fig 9.5 Hugh Town on the 1st edition Ordnance Survey map c 1890

Fig 9.6 House C on Samson

Fig 9.7 Wooden figurehead from the SS Thames in Tresco Abbey Gardens

Fig 9.8 Known investigated and/or salvaged wrecks in Scilly

Fig 9.9 Comparison of English protected wreck sites with those in Scilly

Fig 9.10 Lighthouses and daymarks in Scilly

Fig 9.11 NMR records for crash sites of identified aircraft around Scilly

Fig 9.12 Shipbuilding on Porthcressa, St Mary's, c1870

Fig 9.13 Star Castle and the Garrison

Fig 9.14 List of post-medieval and modern radiocarbon dates

Fig 9.15 List of post-medieval and modern OSL ages

Abbreviations

AONB	Area of Outstanding Natural Beauty
Bcd	Below Chart Datum
CEP	Coastal Erosion Project 1989-93
CIOS	Council of the Isles of Scilly
CISMAS	Cornwall and Isles of Scilly Maritime Archaeological Society
CRO	Cornwall County Record Office
EH	English Heritage
HER	Cornwall and the Isles of Scilly Historic Environment Record
HE	Historic Environment, Cornwall Council
ICS	Institute of Cornish Studies
IMAG	Islands Maritime Archaeological Group
IOSM	Isles of Scilly Museum
IOSWT	Isles of Scilly Wildlife Trust
LBAPW	Late Bronze Age Plainware
MBA	Middle Bronze Age
MHWS	Mean High Water Springs
NGR	National Grid Reference
OS	Ordnance Survey
OSL	Optically Stimulated Luminescence dating
PJG	Plain Jar Group
PRN	Primary Record Number in Cornwall HER
RCM	Royal Cornwall Museum, Truro
RCHME	Royal Commission on the Historical Monuments (England)
RIC	Royal Institution of Cornwall
SHERF	Scilly Historic Environment Research Framework
SSSI	Site of Special Scientific Interest
SWARF	South West Archaeological Research Framework
SWD	South West Decorated (Ware)

Contributors to the project

Individuals

John Allan, Exeter Archaeology
Alex Bayliss, English Heritage
Eric Berry, historic buildings consultant
Eleanor Breen, Council of the Isles of Scilly
Allan Brodie, English Heritage
Sarnia Butcher, consultant
Kevin Camidge, maritime archaeologist
Dan Charman, University of Exeter
Ian Dennis, Cardiff University
Ralph Fyfe, Plymouth University
Duncan Garrow, Liverpool University
Tom Greeves, consultant
Charles Johns, Cornwall Council
Andy Jones, Cornwall Council
Trevor Kirk, Isles of Scilly AONB Unit
Graeme Kirkham, Cornwall Council
Rachel Leung, Cotswold Archaeology
Jane Marley, Royal Cornwall Museum
Peter Marshall, English Heritage
Amanda Martin, Isles of Scilly Museum

Daniel Miles, English Heritage
Steve Mills, Cardiff University
Jacqui Mulville, Cardiff University
Amelia Pannett, Cadw
Marta Perez, Plymouth University
Robert Platts, consultant
Henrietta Quinnell, consultant
Paul Rainbird, consultant
Helen Roberts, Aberystwyth University
Gary Robinson, Bangor University
Niall Sharples, Cardiff University
Katharine Sawyer, archaeologist
Robert Scaife, University of Southampton
Fraser Sturt, University of Southampton
Michael Tangye, consultant
Bryn Tapper, Cornwall Council
Sean R Taylor, Cornwall Council
Charles Thomas, consultant
Carl Thorpe, Cornwall Council
Sue Watts, consultant

Organisations

Cornwall Archaeological Society
Council for British Archaeology, South West
English Heritage

Isles of Scilly Museum
Royal Cornwall Museum

Resource Assessment Seminar

The following attended the seminar in Exeter on 10 December 2011: Allan Brodie, John Allan, Kevin Camidge, Tom Greeves, Philip Hygate, Stephen Jackson, Charles Johns, Nick Johnson, Andy Jones, Phil Markham, Henrietta Quinnell, Trevor Kirk, Graeme Kirkham, Jane Marley, Amanda Martin, Phil McMahon, Paul Rainbird, Katharine Sawyer, Elizabeth Stanbrook, Sean Taylor, Sue Watts

Project Advisory Group

Eleanor Breen, Council of the Isles of Scilly
Alyson Cooper, Cornwall Council
Charles Johns, Cornwall Council
Nicholas Johnson

Phil McMahon, English Heritage
Jane Marley, Royal Cornwall Museum
Caradoc Peters, CBA SW
Trevor Kirk, Isles of Scilly AONB Unit

1 Executive summary

This report presents the results of the first two stages of the Scilly Historic Environment Research Framework (SHERF), the Resource Assessment and Research Agenda. SHERF was funded by English Heritage with contributions from the Isles of Scilly AONB Unit, the Council of the Isles of Scilly and the Duchy of Cornwall and has as its aim the provision of a structure in which to make decisions about future historic environment research. It is part of an English Heritage initiative to prepare a series of research frameworks for the whole country.

The Resource Assessment is a comprehensive overview of the Islands from the Palaeolithic to the present day, which aims to provide an accessible and up-to-date review of the current state of knowledge about the historic environment. It also aims to define the character of the resource and to act as a reference to inform decisions on the future of that resource. The Research Agenda highlights the major gaps in our knowledge and also areas where Scilly's historic environment has the potential to contribute to national and international research questions.

In order to make SHERF as comprehensive as possible the work was carried out by a large number of people with research interests in Scilly. The reports originated from a smaller number who prepared draft documents for each period. The membership of these period groups was drawn from all sectors of the archaeological community in order to get as wide a view of the issues as possible. The draft documents were posted on the website of the Council of the Isles of Scilly and details circulated, with the intention of including all those working, researching or just interested in the archaeology of the Islands. As part of the process a seminar was held to discuss the Resource Assessment and the Research Agenda, which provided a forum for discussion that contributed greatly to the quality of the final document. The final stage of the project, the Research Strategy, will be developed in a similar way and published separately.

Situated some 45km south-west of Land's End, Scilly is a unique environment of exceptional quality, with the relationship between the land and sea providing a very strong and distinctive cultural identity. The Islands in their current form are a result of past marine transgressions which flooded early sites. They are therefore a valuable laboratory for studying continuous sea-level rises within an historical context. Scilly's situation as the westernmost anchorage and the first/last landfall of the south-western approaches has shaped the Islands socially, economically and culturally and also the nature of their archaeological record. This record holds significance in its own right, as well as playing a part in nationally and internationally significant stories of colonisation, travel, trade and conflict.

In spite of its small size – equivalent to a single mainland parish - Scilly is noted for the richness and variety of its historic environment, with over 80 Bronze Age entrance graves and many other prehistoric monuments, including settlement sites and field systems. The Islands' distinctive Iron Age cist burial tradition includes the Bryher sword and mirror burial, a discovery of international importance for the study of the development of Insular Celtic art. The enigmatic Roman shrine on the little island of Nornour produced a huge array of brooches and the largest collection of Roman coins in Cornwall and Scilly. During the early medieval period the Islands were home to several ecclesiastical hermitages and in the medieval period rule was divided between the monks of Tavistock priory on Tresco and the lay lords on St Mary's with their castle at Old Town. St Mary's Garrison, which developed around Star Castle built in 1593-4, has been described as probably the most impressive work of its kind extant in England because of the state of preservation and complexity of its early fortifications.

Research into the historic environment is not static but it is hoped that this report provides an overall snapshot of our understanding of Scilly's historic environment at the beginning of the second decade of the twenty-first century and will provide a focus and catalyst for future research.

2 Introduction to the Project and the Islands

Charles Johns with contributions from John Allan, Eleanor Breen, Allan Brodie, Andy M Jones, Trevor Kirk. Amanda Martin, Jane Marley, Peter Marshall, Jacqui Mulville, Paul Rainbird, Katharine Sawyer, Fraser Sturt and Anna Tyacke.

2.1 Introduction to the Project

2.1.1 Project background

Following the circulation of the draft version of the South West Archaeological Research Framework (SWARF) in 2007, representatives of the Planning and Development Department of the Council of the Isles of Scilly (CIOS) and the Historic Environment Service, Cornwall County Council (now Historic Environment, Cornwall Council - HE), met to discuss the prospect that the South West region's research framework could act as a catalyst for the production of a research framework for the historic environment of Scilly.

Subsequent discussions with English Heritage (EH) confirmed the need for a specific research agenda for Scilly because the resourcing of historical environment fieldwork and the management of historic environment resources on the Islands can only be effectively achieved if the special circumstances of the islands are taken into account. While it is fully acknowledged that Scilly is part of the South West region, the Islands also enjoy historical, cultural and social links with the wider world, including northern France, Wales and Ireland. The proposed research framework would take full account of the historical and geographical context of the Islands, yet would also serve the additional function of identifying island-specific research priorities that can drive forward historic environment fieldwork, research and management on Scilly.

These discussions resulted in an initial draft project outline (Kirk 2009) which was developed into a detailed MoRPHE-compliant project design for the preparation of the research framework (Johns 2009). The Scilly Historic Environment Research Framework (SHERF) was subsequently commissioned by English Heritage through the Historic Environment Enabling Programme (HEEP) in October 2010.

2.1.2 Aims and objectives

The overall aim of the project was to define a research framework for the historic environment of Scilly. The research framework recognises the diversity of the historic environment and among the aspects covered are maritime archaeology and infrastructure, historic buildings and palaeoecology. The project has sought to involve the local and wider research community in this process so that there is a sense of community ownership of the research framework.

2.1.3 Methodology

The preparation of the research framework is a partnership between English Heritage, the Council of the Isles of Scilly, the Duchy of Cornwall, Historic Environment, Cornwall Council, and the local and wider research community. The methodology follows the three-stage procedure outlined in *Frameworks for our Past* (English Heritage 1996) and used in the production of many regional research frameworks, including SWARF (Webster (ed) 2008):

1. *Resource Assessment* The current state of knowledge of Scilly's historic environment was assessed through review of published and unpublished sources (including 'grey literature'), Historic Environment Record (HER) and National Monument Record (NMR) resources, museum archives and information held by local interest groups and members of the public.
2. *Research Agenda*: Identification of a) gaps in the current state of knowledge, b) the potential of the historic environment resource, and c) key research themes and aims.

3. *Research Strategy*: Production of a list of research priorities for the islands (this will be a separate follow-on project).

The project adopted a primarily chronological approach, from early prehistory to the modern period. However, careful attention was paid to transitional periods (e.g. hunter-gatherer to farmer, medieval to post-medieval), including those transitions that fall within traditional chronological phases (e.g. early to late Neolithic).

Cross-cutting themes were also addressed, either embedded within chronological overviews or as separate thematic reviews. Examples of thematic reviews include the coastal, intertidal and marine historic environment and maritime infrastructure, palaeoenvironments, the island landscape, historic landscape and seascape characterisation, trade and industry, and historic buildings and architecture. Formulation of the Resource Assessment and Research Agenda involved three areas of work:

Consultation: The Resource Assessment and Research Agenda were informed by a programme of consultation and feedback. The project aimed to be as inclusive as possible of all parties with an interest in the historic environment of Scilly, including curatorial and field archaeologists, historic buildings researchers, architectural historians, university academics, English Heritage, museum staff, amateur archaeologists and local interest groups. The project manager sought to identify, inform and involve stakeholders. The draft Resource Assessment was circulated via the Council of the Isles of Scilly website and discussed at a seminar held in Exeter on 10 December 2011.

Data Collection: Compilation of the Resource Assessment and to a certain extent also the Research Agenda involved review of published and unpublished sources, HER and NMR data, museum archives, the work and advice of period/thematic experts and information from other interested parties. Researchers and consultants were invited to make voluntary or part-voluntary written contributions in order to encourage a sense of ownership of the research framework (contributors are listed at the beginning of the report and individuals contributing to the various topics are noted at the beginning of each section).

Synthesis: The project results were synthesized and posted on the internet at each stage of the project development (assessment, agenda and strategy). Reports reflect the chronological framework of the project design, with cross-cutting themes woven throughout the discussion.

2.1.4 Note on radiocarbon dates in this report

Radiocarbon determinations for Scilly in this report have all been recalibrated from previously published data using OxCal 4.1 and calibrated using the maximum intercept method rather than the probability method. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period to which the date may be weighted (for example, at 89%). This means that calibrated dates in the tables may vary significantly from those in the publications where they first appeared.

The radiocarbon tables in the text include all the determinations which are currently available (AMS and radiometric) for Scilly. The list forms a useful corpus of dated material. All dates are useful, even a bulked sample of unidentified charcoal provides a useful *terminus post quem* for its context, but the taphonomy of some samples may be open to interpretation. Dating of bulked samples is no longer commonly undertaken because of the prevalence of AMS machines and the dearth of radiometric labs.

The list also includes some determinations which have standard deviations of ± 100 upwards. These are still valuable because they are accurate but not precise; the size of error is irrelevant when chronological modelling is employed.

2.2 Introduction to the Islands

The Scillonian archipelago of approximately 200 islands, islets and rocks situated 45km (28 miles) south-west of Land's End (Fig 2.1) is a unique environment of exceptional quality, with the relationship between the land and sea providing a very strong and distinctive cultural identity.

Today only five islands are inhabited: St Mary's and the 'off-islands' of St Agnes, Bryher, St Martin's and Tresco. Smaller islands that were inhabited in historical times include St Helen's, Samson and Tean.

The archipelago contains wide expanses of shallow subtidal and intertidal environment flooded by rising relative sea level during the Holocene. It has long been known that the islands in their current form are a result of past sea-level rises that flooded early sites. It is therefore a valuable microcosm for studying continuous sea-level rises within an historical context as well as for research and recording important sites that will be lost, and investigating how past populations adapted to their shifting shores.



Fig 2.1 Location map – the Isles of Scilly

2.2.1 Geology

The Isles of Scilly are situated at the merging of the Western Approaches and the English and Bristol Channels. The area forms part of the wide continental shelf to the south and west of England. The rocks at seabed are resistant, metamorphosed, Palaeozoic sediments locally intruded by mainly granitic igneous bodies such as Scilly and the Seven Stones reef (Evans 1990, 1).

Scilly is a geologically-defined topographic feature, an incised and partly submerged cupola forming the western tail of the ridge of exposed granite bosses running along the spine of the south-western peninsula (Dartmoor, Bodmin Moor, St Austell, Carnmenellis and Land's End), the visible part of the single, large Cornubian batholith which intruded into Devonian and Carboniferous stratas some 225 million years ago as a result of the Variscan orogeny. The single rock type has resulted in a uniform morphology in the archipelago, the detailed form of which is controlled by crystalline

variation within the granite, fault patterns and variation in exposure to wave energy (*ibid*, 20-8).

The underlying granite is covered on lower hillslopes and valley floors by weathered periglacial head, dark yellowish-brown stony clay known locally as *ram*, which supports soils suitable for cultivation and pasture.

2.2.2 Topography

Scilly was originally a single, large, oval-shaped island. The erosion and partial submergence by the sea has resulted in the formation of the archipelago with individual islands varying greatly in size and in the height at which they rise above the sea. While the smallest islands of the Western Rocks and Eastern Isles are little more than rocky projections, the five largest islands are much larger in size, covering a total area of 1422 ha (Fig 2.2) (Land Use Consultants 1996, 5).

Bryher	126ha
St Agnes	148ha
St Martin's	222ha
St Mary's	629ha
Tresco	297ha

Fig 2.2 Areas of the five largest islands (Land Use Consultants 1996)

Although rarely rising more than 30m above sea level, there is a remarkable variety and diversity both within and between the individual islands. Each island has a distinctive topography and configuration varying from the gently undulating interior of St Mary's, which rises to the highest point on the Islands at 48m OD at Telegraph Hill, to the series of hills, hollows and valleys that make up Bryher. These in turn contrast with the east-west granite spine of St Martin's and the rounded, flat-topped island of St Agnes. The islands also differ according to the degree of exposure they receive. The outer sides of the island group, that is the north and west coast of Bryher, the north coast of Tresco and St Martin's, and the south-facing coast of St Mary's and St Agnes are generally much harsher with a rugged, rocky coastline exposed to the full force of the Atlantic. By contrast the coastline fronting the interior sea is more sheltered and includes broad, gently shelving sandy beaches and coves (*ibid*, 5).

Extensive intertidal flats, bars and shallow subtidal areas cover much of the inner region of the archipelago; most of the subtidal areas between Tresco, St Mary's and St Martin's are no more than 5m below chart datum (bcd). Broad, fairly shallow sounds radiate outwards from the central areas; e.g. St Mary's Roads, a sound between Tresco and St Mary's and extending to the south-west, which varies between 5m bcd (at the north-eastern end) to 150.25m bcd (off Annet to the south-west) (Evans 1990, 9).

There is only one true example of a freshwater stream on Scilly, on St Mary's. This is fed by a spring which rises at Holy Vale and flows within a shallow valley towards Higher Moors and Porth Hellick Pool. However maritime and freshwater pools occur on most of the islands (Land Use Consultants 1996, 5).

Bryher

Bryher has more varied topography than any of the other islands; its name is derived from the Cornish place-name element *bre* meaning 'hill' and the plural suffix *yer* (Padel 1988, 60) The island is essentially composed of a series of small rounded granite hills (Watch Hill, Timmy's Hill, Gweal Hill, Heathy Hill and Samson Hill) which rise to heights of between 33m and 42m above the intervening valley pastures which run east-west across the island. The exposed headland heath of Shipman Head Down, with its wind-pruned vegetation of maritime grassland and waved heath, extends to the north of the island (Land Use Consultants 1996, 89).

The wilder northern and western sides of the island are open and exposed to the Atlantic while the east coast is sheltered and separated from Treviso by narrow sandy flats (*ibid*, 89).

Granite with weathered periglacial head cloaking the lower slopes of the valley floors provides a suitable soil for cultivation and pasture. On the western side of the island blown sand creates a low-lying area of sand dunes and dune pasture between the Hell Bay Hotel and Great Rushy Bay. Otherwise it is a harsh rocky granite coastline (*ibid*, 89).

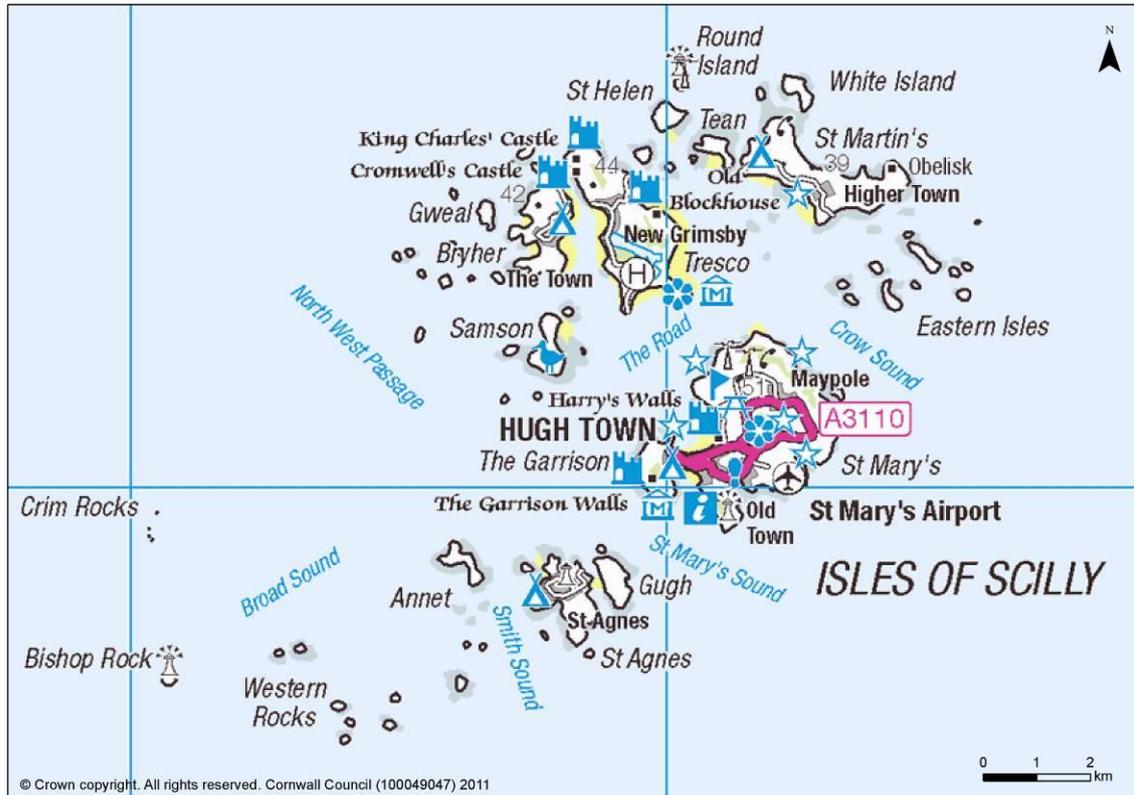


Fig 2.3 The Isles of Scilly

St Agnes

St Agnes is physically similar to the uninhabited western islands – small, round and relatively flat with a rocky coastline. It rises to a maximum height of just above 25m in the centre of the island. The cultivated northern part of the island contrasts with Wingletang Down, the low-lying southern headland where the granite outcrops rising above the heather have been weathered into distinctive tors. The island of Gugh is attached to the eastern side of St Agnes by a sandy *tombolo* which is uncovered at low tide (Land Use Consultants 1996, 91).

St Martin's

St Martin's comprises a long ridge of granite which forms a central spine running east-west along the centre of the island at about 30-40mOD. To the north of the ridge an exposed windswept plateau bears the full brunt of the Atlantic weather, while to the north-east the heath covered granite headland of Chapel Down juts out into the Atlantic. To the south of the central spine the land slopes gently down in a series of bowls and hollows to the low-lying sandy fields fronting the shallow interior sea (Land Use Consultants 1996, 89).

Blown sand cloaks much of the central granite ridge, creating the bracken-covered area known as the Plains. On the edges of the island the sand accumulates in sheltered bays

– St Martin’s Bay on the north coast (sheltered by White Island) and Higher Town Bay (Par Beach) and the Neck of the Pool on the south coast. These long white sandy bays are one of St Martin’s outstanding features (*ibid*).

St Mary’s

St Mary’s is the largest of the islands measuring approximately 4km long by 2.8km wide. A relatively flat island, its most dramatic features are the rock formations at Penninnis, the southern headland. Rising from a low rocky coastline, the interior of the island is gently undulating and includes the rounded plateau hills at Halangy Down, the golf course and the airport (Salakee Down), narrow wooded valleys at Watermill and Holy Vale, and the wider low-lying area of Higher Moors and Lower Moors. The interior of St Mary’s is more isolated from the extreme influence of the sea when compared to some of the off islands (*cf* Land Use Consultants 1996, 95).

St Mary’s is almost entirely granite, with small areas of blown sand accumulating at the Bar, Porth Hellick, Old Town Bay and the coast around St Mary’s Pool creating a small sandy bays in an otherwise rocky coastline. The fortified headland of the Garrison at the south west of the island is linked to the rest of St Mary’s by a sandy isthmus at Hugh Town (*ibid*).

Tresco

Tresco essentially comprises three low rounded hills separated by broad valleys. In the north Castle Down rises to a height of 44m OD and forms an exposed headland. In the centre of the island Middle Down forms a wide hill, rising to a height of just over 30m OD, while the smaller Abbey Hill lies to the south. The granite hills are separated by gentle valleys. The settlements of Old Grimsby, Dolphin Town and New Grimsby lie within the sheltered valley between Castle Down and Middle Down while the broad lateral valley containing Great Pool divides Middle Down from Abbey Hill. The subtropical Tresco Abbey Gardens shelter in the lee of Abbey Hill. The southern part of the island between Appletree Bay and Pentle Bay comprises a flat, low-lying area of blown sand which includes an extensive dune system (Land Use Consultants 1996, 97).

2.3 History of local government in the Islands

Shortly after the Norman Conquest the Islands became the property of the Crown of England and from 1141 part of the Earldom, then after 1337, the Duchy of Cornwall. From the twelfth century the administration of Scilly was divided, with Tavistock Abbey presiding over the northern part, centred at St Nicholas Priory on Tresco, while the de Wika family of Week St Mary in north Cornwall and later the Blanchminsters, also from north Cornwall, were proprietors of what are now St Mary’s and St Agnes. The Blanchminsters were followed by a succession of lay lords (Land Use Consultants 1996, 23).

Tavistock Abbey’s interest in the islands had dwindled by the Reformation and in 1547 Thomas Seymour, Lord Admiral of England, acquired the whole of Scilly. Two years later Seymour was accused of plotting against Edward VI and using the islands as a base for piracy. His execution marked the beginning of the Godolphin connection with Scilly; initially appointed as Captains of the Isles, in 1570 Elizabeth I granted Francis Godolphin a 38-year lease in return for an annual rent of £20. The Godolphins and their successors (the Osbornes, Dukes of Leeds), who ruled in Scilly almost continuously until 1831 when the Islands returned to the direct control of the Duchy, ran the Islands’ affairs through His Grace’s Council, popularly known as the Council of Twelve. The Islands were administered essentially as a single estate (Land Use Consultants 1996, 24; Bennett *et al* 1991).

When the Duke of Leeds decided not to renew the lease of Scilly an administrative vacuum was created which was filled from 1832 by the establishment of the Select Vestry, which, with the Magistrates Court, administered the Islands’ affairs until 1891 (Matthews 1960, 214; Bennett *et al* 1991).

In 1834 Augustus Smith (1804-72), a member of an old Hertfordshire family, became Lord Proprietor of the Islands. His autocratic rule largely dominated the Select Vestry and Magistrates Court (Matthews 1960, 214).

The Local Government Act 1888 allowed the Local Government Board to establish in the Isles of Scilly 'councils and other local authorities separate from those of the county of Cornwall... for the application to the islands of any act touching local government.' In August 1890 a Local Government Board Provisional Order Act was passed by which Scilly was constituted into a County Council area and suitable machinery for the direction of public affairs was set up. Accordingly, in 1891 the Council of the Isles of Scilly was formed as a *sui generis* unitary authority, outside the administrative county of Cornwall (Matthews 1960, 236; Gill 1975, 64).

2.4 Tenure

The Duchy of Cornwall owns the freehold of most of the land and nearly a third of the residential buildings on the Islands. The Isles of Scilly Wildlife Trust (IOSWT) cares for the rough ground that make up 60% of the landmass of Scilly and includes all of the uninhabited islands, islets and rocks and most of the coastal fringes on the inhabited islands of St Mary's, St Agnes, Bryher and St Martin's and rents these lands from the Duchy for one daffodil a year on a 99-year lease which began in 1986 (Fig 2.4). The island of Tresco is leased from the Duchy by the Dorrien-Smith family, the heirs of Augustus Smith.

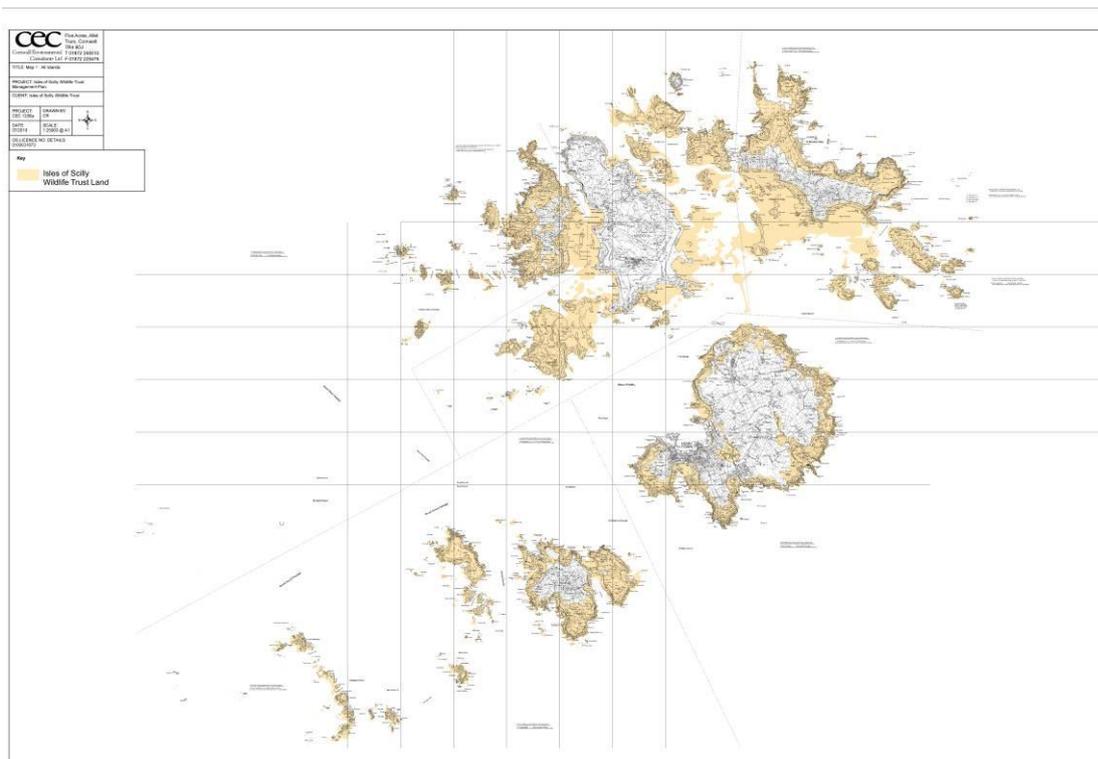


Fig 2.4 Map of the Isles of Scilly Wildlife Trust's holding (Cornwall Environmental Consultants)

2.5 Past and present work in Scilly

2.5.1 Antiquarians and archaeologists

The study of the historic environment of Scilly was pioneered by the famous antiquarian William Borlase, vicar of Ludgvan parish near Penzance, who visited Scilly in 1752 and identified and classified various entrance graves, menhirs and ancient field walls

(Borlase 1753; 1756). He carried out the earliest recorded excavation in Scilly when he opened two entrance graves on Buzza Hill, St Mary's (Borlase 1756; 1769). Only 12 excavations are recorded between then and 1929, all but one of which were entrance graves or cists. It is very probable that many more of these monuments were dug into in a less systematic way and the findings not recorded for posterity.

Considerable archaeological detail was also recorded by the Revd John Troutbeck, chaplain in Scilly between 1780 and 1796 (Troutbeck c 1794). Augustus Smith, Lord Proprietor of the Islands from 1834 to 1872, was interested in Scilly's ancient past as well as its present state and in 1862 he opened a cist barrow on North Hill, Samson (Smith 1863). In 1899 George Bonsor, a retired Cornish engineer and antiquarian, residing in Spain, arrived in Scilly and spent three years investigating the archaeology of the Islands (Hencken 1932; Ashbee 1981).

Some of the earliest archaeological photographs in Britain were taken by the Scillonian photographer Alexander Gibson (1857-1944). His pictures and those of his son, James, form a valuable record of the ancient monuments of Scilly. The family also collected a large number of antiquities which were exhibited in their private museum in Hugh Town until the 1960s.

In 1926 OGS Crawford, Archaeology Officer to the Ordnance Survey, visited Scilly and observed the intertidal stone walls on Samson Flats and examined many entrance graves and cists (Crawford 1927; 1928). Between 1923 and 1927 and from 1930 to 1936 Alec Gray, an amateur archaeologist from Cornwall, lived in the Islands and recorded numerous stone structures and old land surfaces exposed by cliff erosion (Gray 1972). He was assisted in his work by local enthusiast Joe Treneary of Telegraph Hill, St Mary's. Gray's work at Halangy Porth in 1929 (*ibid*) marked the beginning of 30 years of more intensive excavation in Scilly, which was no longer totally preoccupied with Bronze Age funerary monuments.

The first comprehensive account of Scillonian archaeology was published in 1932 by Hugh O'Neill Hencken. His work concentrated on entrance graves. He numbered those he identified, island by island, and tabulated their dimensions. Stuart Piggott came to Scilly in 1937 (Piggott 1941) and five years later, during World War II, WF Grimes made a brief visit to St Mary's to excavate an entrance grave on Salakee Down prior to the extension of the airfield by the Ministry of Defence (Grimes 1960). Glyn Daniel incorporated the results of fieldwork in Scilly in 1936 and 1946 into *Prehistoric Chamber Tombs of England and Wales*; he renumbered and made additions to Hencken's list of entrance graves (Daniel 1950).

During the immediate post-war years, the Revd HA Lewis pursued his interest in archaeology while chaplain of St Martin's (Lewis 1948) and his discoveries led to Bryan O'Neil, Chief Inspector of Ancient Monuments for the Ministry of Works (MoW) making his first visit to Scilly in 1947. Accompanied by his wife, Helen, he returned yearly until his death in 1954. During this period he wrote the Ministry's official guide to the ancient monuments of Scilly (O'Neil 1961). In the 1940s and 1950s the O'Neils carried out a total of 34 excavations in Scilly and these are listed by Beagrie (1989). Most were entrance graves or early settlement sites on St Martin's, but they also included Giant's Castle on St Mary's and King Charles' Castle on Tresco. In 1953-4 Helen O'Neil excavated the ecclesiastical complex on St. Helen's (O'Neil 1964). Equally important was Charles Thomas' excavation of an Early Medieval chapel and cemetery at East Porth, Tean in 1956 (Thomas 1960b; 1985, 183-5).

Paul Ashbee first came to Scilly at the request of Bryan O'Neil, to excavate the cist-grave cemetery at Porthcressa, St Mary's for the MoW (Ashbee 1954; 1979). He continued the study of entrance graves, introducing his own numbering system (Ashbee 1963). He also investigated the courtyard house settlement at Halangy Down (Ashbee 1955; 1996). In 1974 he published *Ancient Scilly*, an account of the early archaeology of the Islands, the culmination of his work over the previous 25 years.

A variety of other individuals and institutions carried out archaeological work in Scilly during the second half of the twentieth century. From the 1950s to the 1970s Andrew Saunders, then Chief Inspector of Ancient Monuments, made frequent visits to the Islands. In 1954 he and Trevor Miles undertook a trial excavation at King Charles' Castle, Tresco (Miles and Saunders 1971); the assemblage of ceramics recovered from that site is still the single most informative collection from the period in Scilly. Dorothy Dudley, Sarnia Butcher, David Neal and John Evans carried out excavations under the auspices of the MoW at Poynter's Garden, St Mary's (Dudley 1960), Nornour (Dudley 1967; Butcher 1978 and 2000-1), Little Bay, St Martin's (Neal 1983), East Porth, Samson (Neal, forthcoming) and Bar Point, St Mary's (Evans 1984). In 1978 Howard Mason from Cardiff University excavated a post-medieval building on Samson (Mason 1984). Since 1963, Michael Tangye, an amateur archaeologist from Redruth, has holidayed in Scilly and recorded its archaeology. In 1978, as part of its map revision, the Ordnance Survey carried out a systematic archaeological survey of every island (Quinnell 2009-10)

In the 1970s extensive survey work was carried out by Charles Thomas, notably of early settlement and field system remains (Thomas 1975; 1978; 1985; Fowler and Thomas 1979). In the late 1970s and early 1980s he superintended several important projects in Scilly, including Vivien Russell's checklist of archaeological sites (Russell 1980), the initial compilation of a Sites and Monuments Register (1984-5) and an excavation index for Scilly compiled for the RCHME in 1987/88. In 1985 he published *Exploration of a Drowned Landscape* which illustrates his wide-ranging knowledge of Scillonian archaeology and history (Thomas 1985).

Trenching in advance of cable laying for the off-islands Electrification Project was observed and recorded on St Martin's, Tresco, Bryher and St Agnes during 1985 under the supervision of Jeanette Ratcliffe for the Institute of Cornish Studies (ICS); the results of the project were presented in *Lighting up the past in Scilly* (Ratcliffe 1991).

Jeanette Ratcliffe subsequently became a field officer with the Cornwall Archaeological Unit (CAU), with special responsibility for projects in the Isles of Scilly. In 1988, with a team including Cathy Parkes, Carl Thorpe and Andy Waters, she carried out a benchmark project for English Heritage to assess the archaeological resource of the Islands, resulting in a management plan for Scilly (Ratcliffe 1989).

Emerging from the recommendations of this report was the Coastal Erosion Project (CEP), a five-year rolling programme of coastal monitoring, small-scale excavation and recording and environmental sampling, funded by English Heritage and implemented by CAU (in conjunction with the Ancient Monuments Laboratory and Bristol University) between 1989 and 1993. The CEP culminated in the publication of *The Early Environment of Scilly* (Ratcliffe and Straker 1996).

Much of the archaeological fieldwork undertaken in Scilly during the 1990s was associated with coast protection schemes or cable laying. The former included recording cliff-exposed Bronze Age remains at Porth Killier on St Agnes in 1996 (Ratcliffe *et al*, forthcoming) and sampling peat deposits at Old Town Bay, St Mary's (Ratcliffe and Straker 1998). During British Telecom trenching on St Martin's in 1992 an Early Christian grave and medieval midden were discovered at Lower Town (Ratcliffe 1997).

In 1995 Gill Arbery was appointed as Field Monument Warden and Conservation Officer for Scilly, a post jointly funded by English Heritage and the Council of the Isles of Scilly. Gill did much valuable work in Scheduled Monument management and planning advice before she left in 2004. Her successor Eleanor Breen was in post as Assistant Planning Officer (Conservation) and Historic Environment Field Advisor between 2007 and 2011.

The discovery and excavation of the Bryher sword and mirror cist burial in 1999 is arguably the most important archaeological event in the Islands during the last 25 years. A fragment of long bone from the burial was radiocarbon dated to 200-45 cal BC. The metalwork typology narrows this range to the first half of the first century BC,

indicating that Bryher is the earliest known British decorated bronze mirror, with important implications for the study of insular Celtic art in Britain (Johns 2002-3).

Much development-led work was undertaken in the first decade of the twenty-first century, mostly small scale interventions by various archaeological contractors. A watching brief during the construction of a new playing field at Dolphin Town, Tresco, in 2003 revealed remains of a Middle Bronze Age settlement (Taylor and Johns 2009-10) and a Late Bronze Age settlement was investigated in 2009/10 at a new affordable housing development at Higher Town Farm on St Agnes (Taylor and Johns, forthcoming). Detailed evaluation on the site of the new Five Islands School Base at Carn Gwaval, St Mary's did not reveal any archaeological remains other than removed post-medieval field boundaries (Johns *et al* 2010). Similarly watching briefs during the refurbishments of the off-island quays in 2007 were largely unproductive except for the discovery of two nested Early Bronze Age vessels on the site of the contractor's compound near Porth Conger, St Agnes (Johns and Sawyer 2008; Wessex Archaeology 2008a; Johns and Quinnell, forthcoming).

There has been continuing interest in Scilly by academic researchers. Fieldwork and research has been undertaken by Trevor Kirk (Kirk 2004), Mary Ann Owoc of Mercyhurst College, Pennsylvania (Owoc *et al* 2003), and Eleanor Breen (Breen 2005 and 2008). Gary Robinson drew together and reconsidered existing archaeological data for his PhD thesis (Robinson 2007). Katharine Sawyer is currently studying for a PhD on the setting and function of the Bronze Age chambered cairns and cists of Scilly.

Since 2005, three seasons of fieldwork have been carried out by the ongoing 'Islands in a Common Sea' project directed by Charles Johns and Jacqui Mulville of Cardiff University, including recording the cliff-exposed Bronze Age cairn at Pendrathen, St Mary's (Johns and Mulville 2011), evaluation of the site of Knackyboy Cairn (Mulville *et al* 2007), and archaeological investigation and building recording of the post-medieval buildings on Samson and Tean (Johns *et al* 2007; Johns *et al*, forthcoming a and b).

Detailed survey of the intertidal stone walls and other features on Samson Flats was carried out by the Cornwall and Isles of Scilly Maritime Archaeological Society (CISMAS) in 2009 and 2010 (Camidge *et al* 2010a). A survey of field boundaries on Bryher, St Agnes, St Martin's, St Mary's and Tresco has recently been carried out by HE Projects (Kirkham *et al* 2011). The majority of sites and monuments in Scilly still do not have large-scale measured plans or surveys.

In September 2013 some small scale excavation is proposed at Old Quay, St Martin's, as part of the 'Neolithic Stepping Stones' project, to improve understanding of the processes through which Neolithic practices came to Britain from the European mainland around 4000 BC (Garrow and Sturt 2009).

2.5.2 Geophysical survey

Geophysical surveys have been carried out as part of evaluations at Dolphin Row Cottages, Tresco (Shiel 1999), and Dolphin Town, Tresco (Gater 1999), and during 'Islands in a Common Sea' fieldwork at Pendrathen and Lunnon and Normandy Farms, St Mary's, in 2005 (Young, in Johns and Mulville 2011). In 2007, as part of the same project, geophysical surveys were carried out at East Porth, Tean and the cricket pitch on St Agnes (Young, in Johns *et al*, forthcoming). Geophysical survey was also carried out in advance of the new Five Islands School Base development at Carn Gwaval, St Mary's (Sabin and Donaldson 2010).

Maritime geophysical survey and prospection for submerged peat deposits were carried out during the Lyonesse Project (Camidge *et al* 2010b; Charman *et al* 2011). A geophysical survey of St Mary's harbour was carried out by Wessex Archaeology in 2004 (Wessex Archaeology 2004).

2.5.3 Environmental studies

Pollen studies carried out since the 1960s have produced valuable information regarding the past vegetation and environmental history of Scilly. Analysis of peat samples from the two major wetlands of Higher and Lower Moors, St. Mary's, has provided a general background vegetational history for the Islands (Scaife 1984). Radiocarbon determinations from Higher Moors made it possible to broadly date the vegetational changes represented in pollen diagrams. During the sixth millennium BC woodland of mainly oak, birch and hazel predominated. Partial woodland clearance, accompanied by cereal cultivation, occurred during the Bronze Age, but was followed by a phase of localised woodland rejuvenation. By the Early to Middle Iron Age, however, this cover had virtually disappeared.

Pollen results reflecting very localised vegetation and environmental change have been obtained from palaeosoils buried beneath blown sand. Dimpleby's work at Innisidgen produced the first direct evidence of deciduous forest cover on St Mary's, together with evidence of early agricultural activities (Dimpleby *et al* 1981). Soil pollen analyses at Nornour (Greig and Keeley 1978), Halangy Down (Dimpleby *et al* 1981) and Bar Point (Balaam 1981) reflect the open conditions and more intensive agriculture which prevailed during the Iron Age.

Some work has been carried out on buried soils themselves, for example at Nornour (Greig and Keeley 1978; Keeley 1978), Little Bay (Keeley 1983), Samson (Keeley AML Report 1975a), Bar Point (Macphail 1981) and Hillside Farm, Bryher (Heathcote 2000).

The 1989-93 Coastal Erosion Project assessed the palaeoenvironmental potential of 14 early coastal sites. The key environmental gain from the cliff-face sites was the establishment of a range of crops for Scilly for the Bronze Age and Iron Age. These included naked and hulled barley, emmer wheat and celtic bean and other plants such as fat hen, knotgrass, black bindweed and chickweed (*ibid*).

Radiocarbon dating and palaeoenvironmental analysis of two peat layers below the surface of the beach at Old Town, St Mary's, indicated that between the Iron Age and early medieval periods the site was an area of shallow freshwater surrounded by a largely open landscape, with arable fields and pasture bordering wetland. Following an episode of sand encroachment, the upper 'peat' began forming within a similar environment some time during the tenth to twelfth centuries AD (Ratcliffe and Straker 1998).

In 2006 Rob Scaife carried out analysis of a 'spot' pollen sample from a soil underlying the eroded Bronze Age round cairn exposed in the cliff face at Pendrathen, St Mary's. This showed that the cairn was built on grassland or pasture within a region of hazel scrub woodland, indicating for the first time in Scilly the apparent effects of immediate post-woodland clearance and establishment of grassland, possibly pasture, and also the consequent expansion of hazel woodland (Scaife, in Johns and Mulville 2011).

The Lyonesse Project, a three-year project funded by English Heritage to study the evolution of the coastal and marine environment of Scilly, was carried out between 2009 and 2012 by HE Projects and a team of specialists from English Heritage's Scientific Dating team, the Universities of Aberystwyth, Cardiff, Exeter and Plymouth, with local marine archaeologists and enthusiasts from CISMAS and the Islands Maritime Archaeology Group (IMAG) (Charman *et al* 2012). The project involved geophysical survey of submerged peat deposits, assessment, survey and sampling on intertidal peat deposits, palaeoenvironmental analysis, radiocarbon dating and optically stimulated luminescence (OSL) dating.

2.5.4 Osteological faunal remains

Animal bone preservation is usually poor in Scilly because of the acidity of the soil at the time of deposition, and it is only in large middens that such remains are found. From 1960 Dr Frank Turk studied the sub-fossil fauna of the islands, and identified bones from various excavated sites: Nornour (Turk 1967; 1971; 1978), Tean (Turk

1968), Samson (Turk 1973), May's Hill, St Martin's (Turk 1983), Porth Killier, St Agnes, a midden at Periglis, the unexcavated settlement at Dial Rocks and a site north east of Higher Town, St Agnes (Turk 1968, 1984). In 1984 he published a catalogue of all the species recorded in the Archaeo-Zoology of Cornwall and Scilly up to that date. This includes remains identified at Halangy Porth (Gray 1972), Samson (Mason and Hayton 1977) and Little Bay (Locker 1983).

Existing knowledge and new bone evidence – for example, the addition of seven new fish and ten new birds to the list of species identified for Bronze Age Scilly - was summarised by Ratcliffe and Straker (1996).

Since 1996 assemblages of faunal remains have been recovered from Porth Killier (Locker in Johns *et al*, forthcoming); Hillside Farm, Bryher (Ingrem, in Johns 2002-3); and Higher Town, St Agnes (Ingrem, in Taylor and Johns, forthcoming).

2.5.5 Submergence studies

It is not difficult to imagine the two hundred or so islands, islets and rocks of Scilly as part of one large island that has become gradually submerged. At low tide, extensive sand flats are exposed on the inner-facing shores of the northern part of Scilly, making it easy to visualise former plains fringed by low granite hills and sand dunes. Bryher, Tresco and Samson are still joined at low astronomical tide (LAT), and the water is so shallow between the islands that a drop in sea level of less than 10m would re-unite all except St Agnes and Annet (Ratcliffe and Straker 1997, 74-5). Submerged stone remains (such as field walls, hut circles and cist graves) have been documented since Dr Borlase in the mid-eighteenth century, but it is only in recent years that intertidal 'peat' deposits have been recognised (Ratcliffe and Straker 1997, 64).

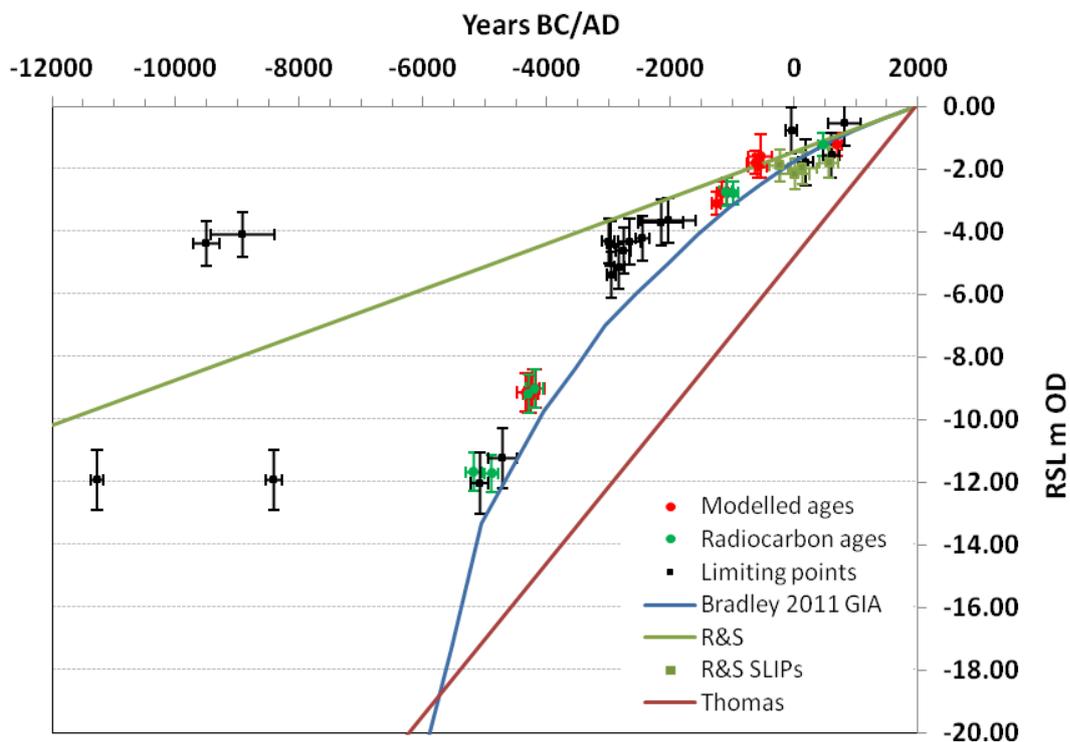


Fig 2.5 All sea-level data from Scilly, showing all limiting index points (max. and min. depths from freshwater peats) and multiple index points from some profiles based on both radiocarbon and modelled age estimates, sometimes from the same samples. Error bars show total error in palaeo-elevation estimates and 2σ age ranges. Continuous lines are the sea-level curves of Thomas (1985), Ratcliffe and Straker (1996) and as derived from Bradley (2011) (from Charman *et al* 2012)

There have been two contrasting models for ancient sea-level rise in Scilly. The first, published by Charles Thomas in 1985, was based on a study of contours and

settlements, supported by coastal place-name evidence, and suggested that Scilly was a single island until about the fifth century AD; it would have continued to form a visible single entity at low tide until as late as the eleventh century, the final separation perhaps not occurring until the early sixteenth century. The second model resulted from analysis of radiocarbon dates and corresponding levels from intertidal peat deposits sampled during the Coastal Erosion Project and indicated a less dramatic sea-level rise so that the islands could have been separated at high water from c 1000BC (Ratcliffe and Straker 1996; 1997).

Modelling of the results from the Lyonesse Project now demonstrate that the present pattern of islands was largely formed by the end of the Early Bronze Age but with a much more extensive intertidal zone than today (Charman *et al* 2012).

2.5.6 Maritime

The National Heritage Act of 2002, which extended English Heritage's remit into the marine zone, and the discovery of the stern carving from HMS *Colossus* brought maritime archaeology to the fore (Stevens 2007). The Time Team visited the islands to record the lifting of the carving in 2002.

There are now two local maritime archaeology groups, the Cornwall and Isles of Scilly Maritime Archaeology Society (CISMAS) and the Islands Maritime Group (IMAG), and other independent divers. Maritime projects have included ongoing trials on HMS *Colossus* (e.g. Camidge 2005; 2009), work on the *Firebrand* by Bristol University and the discovery of the Wheel Wreck by IMAG which has been designated under the Protection of Wrecks Act 2003. Wessex Archaeology has carried out designated and undesignated site assessments of a number of wrecks for English Heritage (Wessex Archaeology 2005; 2006a; 2007).

2.5.7 Unpublished fieldwork

This includes George Bonsor's notes on his work in Scilly between 1899 and 1902, fieldwork carried out over many years by Charles Thomas and Michael Tangye (although their valuable field notes, sketches and photographs made a valuable contribution to the compilation of the SMR), and Bryan O'Neil's archive (although this provided a major source of information for the 1987/1988 Excavation Index).

Key sites for which publication is outstanding include the 1956/60 excavations at East Porth, Tean (Thomas 1960b), the 1971 excavation at East Porth, Samson (Neal, forthcoming), the 1971 excavation at Bar Point, St Mary's (Butcher and Johns, forthcoming) and the results of the 1996 Coast Protection Scheme recording at Porth Killier, St Agnes (Ratcliffe *et al*, forthcoming).

2.6 Sources

2.6.1 Published sources

A considerable amount has been written on the archaeology and history of Scilly. Much archaeological detail is included in eighteenth- and nineteenth-century accounts of the islands (Leland (in Chope 1918); Heath 1750; Borlase 1756; Troutbeck 1796; Woodley 1822; Whitfield 1852; Maybee 1883). The 1651 Parliamentary Survey is also very useful (Pounds (ed) 1984). During the twentieth century three books were published which deal specifically with the archaeology of Scilly (Hencken 1932; Ashbee 1974; Thomas 1985), plus a report on the archaeological resource and recommendations for its management (Ratcliffe 1989) and the *Early Environment of Scilly* (Ratcliffe and Straker 1996). More recently, Gary Robinson's PhD thesis on the prehistoric island landscape of Scilly was published in 2007. Other books document the general history of the Islands (e.g. Matthews 1960; Mumford 1967; Gill 1975; Bowley 1980). References to Scillonian archaeology are also contained in archaeological books covering a wider geographical area than Scilly (e.g. Daniel 1950; Piggott 1954; Pearce 1978; Bell 1984; Todd 1987; etc).

Numerous articles on various aspects of the historic environment of Scilly have been published in the journals of local and national societies. The results of most early excavations in Scilly are found in the pages of the *Antiquaries' Journal*, the *Archaeological Journal*, and the *Proceedings of the West Cornwall Field Club*. Since the founding of the Cornwall Archaeological Society in 1962, most excavation reports have been published in its journal, *Cornish Archaeology*, with a few appearing in *Cornish Studies*, the journal of the Institute of Cornish Studies. *The Scillonian*, the quarterly magazine for the Isles of Scilly, frequently contains articles on historical and archaeological subjects.

The Isles of Scilly Museum publishes an occasional series of booklets including a checklist of archaeological sites (Russell 1980), a guide to the buildings of Scilly (Laws 1980) and a study of the kelp industry (Over 1987).

Earlier guide books for the archaeological remains in Scilly include O'Neil (1949) and Over (1974). The first edition of the popular booklet *Scilly's Archaeological Heritage*, which provides a succinct chronological overview of the islands' archaeology and history and a gazetteer of sites to visit, was published in 1992 (Ratcliffe 1992). A fully revised edition with colour illustrations was published in 2003 (Ratcliffe and Johns 2003). A number of archaeological and historical walks leaflets have also been produced.

Many books have been published on the maritime history of Scilly (Morris 1969 and 1979; Larn 1993; 1999; Larn and Larn 1995; McBride and Larn 1999; Stevens 2007; 2008; 2009; etc).

Important recent publications are Rosemary Parslow's study of Scillonian flora (Parslow 2007), and English Heritage's new book on the military defences of Scilly (Bowden and Brodie 2011).

Recent development-led work is reported in 'grey literature' reports produced by various organisations, copies of which are provided to the HER.

2.6.2 Cartographic sources

The earliest map of the islands, entitled 'Les Sorlinges' and possibly surveyed by Captain John Davies, dates from the late sixteenth century. It gives an impression of where people were living but not in sufficient detail to identify many individual buildings (Fig 2.6). One of the Isles of Scilly Museum publications is a guide to the scarcer maps and books of Scilly (Isles of Scilly Museum 1974).

There are also a number of maps of the Garrison drawn for military purposes that show Hugh Town, including, for instance, Christian Lilly's survey of 1715

Unlike tithe maps on the mainland, the tithe maps for Scilly do not have field boundaries because of the monopolistic landownership of Scilly's two main islands. They do show clusters of buildings that depict in a sketchy fashion the main locations for settlement. Between 1829 and 1831 George and Edward Driver carried out a rental survey of the islands for the Duchy of Cornwall and listed all the holdings, tenements and occupiers. The originals are held in the archives at Tresco Abbey. There are reduced photographic copies in the archives of the Duchy of Cornwall Office in London of four Driver Bros manuscript maps covering (1) St Agnes, Annet, Gugh, St Martin's and White Island; (2) Bryher, Tresco, Gweal, St Helen's, etc; (3) St Mary's; and (4) Samson, Tean and the Eastern Isles.

Today Ordnance Survey maps are available through Geographical Information Systems (GIS), as well as on paper and for the Isles of Scilly English Heritage's WebGIS system provides access to the 1891 1:10,560 OS map, the 1908 1:2,500 OS map, and the 1909 1:10,560 OS map.

collection and its archive, as well as some folders of drawings of the properties it manages on the islands

2.7 Historic Environment designations

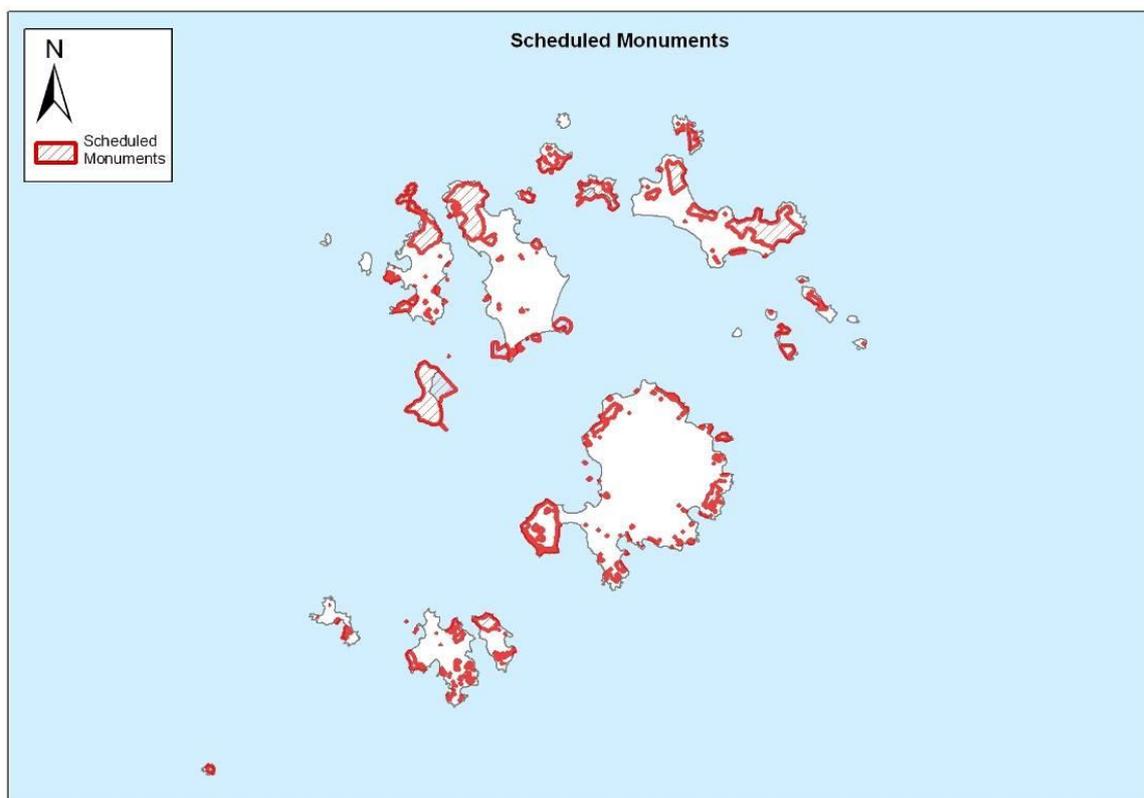


Fig 2.7 Distribution of Scheduled Monuments in the Isles of Scilly

2.7.1 World Heritage Sites

Scilly does not contain any World Heritage sites.

2.7.2 Scheduled Monuments

The Isles of Scilly contain 238 Scheduled Monuments (Fig 2.7), which represents 3.4% of the total in South-West England (as at July 2004). However at 10.23 per km² the islands have by far the highest density, its nearest contender being Plymouth with 0.76 per km², while Cornwall has 0.38 per km² (Webster (ed) 2008, tables 1.1 and 1.2).

2.7.3 English Heritage Guardianship sites

English Heritage has eight unstaffed properties in guardianship located on the Isles of Scilly, three of which are prehistoric and five military in date.

1. Garrison Walls, St. Mary's

Garrison Walls is the largest property on the islands, and currently provides a hub for the interpretation of the other military English Heritage properties on the Islands.

2. Harry's Walls, St. Mary's

Harry's Walls is an unfinished artillery fort built above St Mary's Pool in 1552-3. It has been argued that building work stopped due to a lack of money, or because it was realised that the fort was not in the best position for defence, but neither of these explanations is satisfactory. Its location and state of completion are a real enigma.

3. Bant's Carn Burial Chamber and Halangy Down Ancient Village, St. Mary's

Halangy Down is a Romano-British settlement dating from about cal AD 200 BC, which continued in use until the end of the Roman period. It consists of one large courtyard house and several smaller houses, 11 buildings in total. Excavations at the site in the 1970s produced many artefacts and revealed details of the house structures and way of life (Ashbee 1996).

Directly upslope from the village is Bant's Carn, a Bronze Age entrance grave. It was excavated in 1900 by the antiquarian George Bonsor who found the remains of four cremations at the back of the chamber together with sherds of Bronze Age pottery.

4. Innisidgen Lower and Upper Burial Chambers, St. Mary's

Two Scillonian entrance graves dating to the Bronze Age; although the lower chamber is in a poor state of repair, the upper was restored in the 1970s and is one of the best preserved entrance graves on the Islands. A prehistoric field system survives further up the hillside to the north which may be associated with the chambers.

5. Porth Hellick Down Burial Chamber, St. Mary's

Porth Hellick chamber, the 'Giant's Grave', is a large Bronze Age entrance grave. It is the best preserved of seven Scillonian entrance graves which stand on the down, in addition to two cairns. It is 12m in diameter; apparently an encircling kerb was destroyed during misguided restoration work by the MoW. Although it was excavated in 1899 by George Bonsor, only Bronze Age pottery was found and it was reported that the tomb had already been cleared.

6. Old Blockhouse, Tresco

The Old Blockhouse is a small gun blockhouse, built to protect Old Grimsby harbour between 1548 and 1552. It later played an important part during the Civil War. In 1651 a Royalist garrison was defending the islands against attack by a Parliamentarian fleet commanded by the famous Admiral Robert Blake. Blake attacked Tresco first and although the blockhouse was vigorously defended, the Parliamentarians went on to defeat the Royalist stronghold at the Garrison on St Mary's.

7. King Charles' Castle, Tresco

King Charles' Castle was a coastal artillery fort built between 1548 and 1554 during the reign of Edward VI to protect the narrow strait leading past New Grimsby harbour. It is a semi-hexagonal structure, providing a wide field of fire and the two-storey building would have contained two tiers of guns. Domestic quarters for the garrison were located at the rear. However, the castle proved to be badly sited to fire on ships in the channel below: some of its guns wouldn't have been able to be depressed to the steep angle needed.

During the Civil War, the castle was garrisoned by Royalists, and low earthwork bastioned defences were thrown up beyond the castle to protect it from landward attack; these can still be seen. When the Parliamentarians took Tresco in 1651 they bypassed the castle by landing on the other side of the island, near the Old Blockhouse, and attacked over land. The castle was replaced later in the Civil War by Cromwell's Castle.

8. Cromwell's Castle, Tresco

This coastal gun tower built by Oliver Cromwell in 1651-2 was a replacement for King Charles' Castle, built once Tresco had been taken by the Parliamentarians. It was built on a promontory to guard the anchorage and narrow channel between Bryher and Tresco. The guns were mounted on the roof above the garrison's living quarters and magazines. The tower was originally entered at first floor level by an external stair on the south side. The present entrance dates from the construction of the lower gun platform, added in the 1740s by Abraham Tovey, Master Gunner.

2.7.4 Listed Buildings

Scilly has 129 Listed Buildings (Fig 2.8), four Grade 1, eight Grade II* and 117 Grade II (as at July 2004). This is the lowest number of any local authority in the South West but the overall density of 5.54 per km² places it sixth out of 16 (Webster (ed) 2008, tables 1.3 and 1.4).

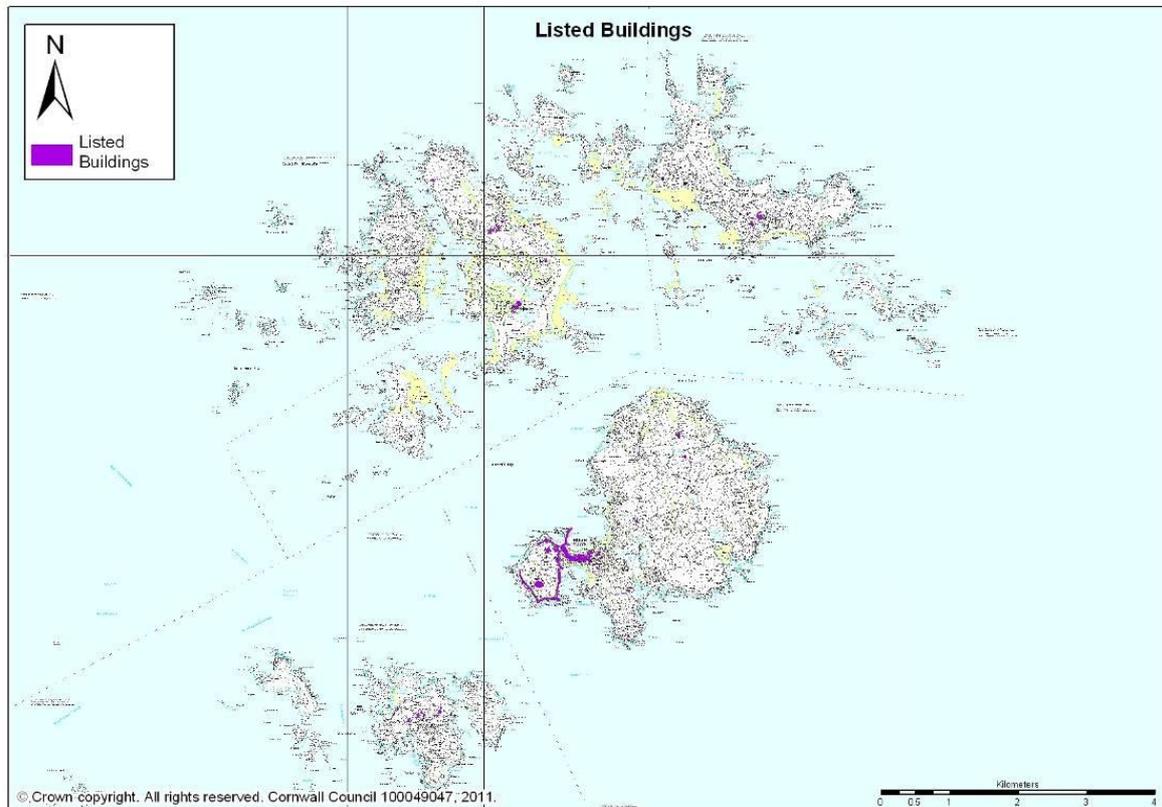


Fig 2.8 Distribution of Listed Buildings in Scilly

2.7.5 Registered Parks and Gardens

The islands contain one Grade 1 Registered Park and Garden (Tresco Abbey Gardens).

2.7.6 Registered Battlefields

Scilly does not contain any Registered Battlefields.

2.7.7 Protected Wrecks

Of a total of some 771 recorded wreck sites in the waters around Scilly, four wrecks are designated under the Protection of Wrecks Act 1973 (section 1). These are:

- the mid-late sixteenth century possible small Spanish cargo on Bartholomew Ledge in St Mary's Sound;
- the Tearing Ledge shipwreck south of the Bishop Rock lighthouse which is now thought to be the *Eagle*, lost in 1707;
- HMS *Colossus*, lost in 1798 off Southard Well, Samson.
- The Little Gannick wreck, comprising a discrete mound of post-1850 Cornish mining equipment (Fig 2.9).



Fig 2.9 The Little Gannick or Wheel Wreck (© Crown Copyright, photo by Wessex Archaeology)

2.8 Other Designations

Eight different designations apply to Scilly:

- Area of Outstanding Natural Beauty (whole of the Isles of Scilly)
- Conservation Area (whole of the Isles of Scilly)
- Heritage Coast (whole of the Isles of Scilly)
- Candidate Special Area of Conservation EU Habitats Directive (SAC) – covers an area of 268.5 km² (26,851 ha, of which 181.32 ha is terrestrial)
- Special Protection Area EU Habitats Directive (SPA) – covers an area of 4.09km² (401.64 ha)
- Non Statutory Marine Park – to 50m contour
- Ramsar Convention-designated wetlands – covers an area of 4.09km² (401.64 ha)
- Sites of Special Scientific Interest (SSSIs) – 26 sites, 5 of which are geological – covers an area of 5.63 km² (554.98 ha) (Council of the Isles of Scilly 2004, 4).

2.9 Other English Heritage National Programmes

2.9.1 Extensive Urban Surveys

The urban survey of Hugh Town was carried out in 2002-3 as part of the Cornwall and Scilly Urban Survey project (Kirkham 2003).

2.9.2 Rapid Coastal Zone Assessment Surveys

The Rapid Coastal Zone Assessment Survey (RCZAS) Phase 1 Desk-based Assessment was carried out by the Historic Environment Service, Cornwall County Council in 2003-4 (Johns *et al* 2004).

2.9.3 Historic Landscape Characterisation

In 1996 Historic Landscape Characterisation was applied to Scilly in the *Historic Landscape Assessment and Management Strategy* (Land Use Consultants 1996), which highlights the antiquity and archaeological potential of Scilly's landscape. The HLC is available as layer on the Isles of Scilly HER GIS database.

2.9.4 Historic Seascape Characterisation

The national Historic Seascape Characterisation (HSC) programme began in 2005 with pilot project in Liverpool Bay undertaken by Wessex Archaeology, subsequent pilot projects were followed by the consolidation of a national methodology for HSC, a demonstration project on the North East and application of HSC to four more areas. The Isles of Scilly is included in the South West Peninsula and adjacent inshore and offshore waters HSC Project which will be completed in August 2013 (Dudley and Johns, forthcoming).

2.9.5 National Mapping Programme

The National Mapping Programme (NMP) grew out of Royal Commission on the Historical Monuments of England (RCHME) projects to map large areas of archaeological remains visible on aerial photographs. Following pilot projects the programme started in 1990. The NMP for Scilly was carried out in 2003 by the Historic Environment Service, Cornwall County Council, to tie in with the RCZAS (Johns *et al* 2004) The NMP plot for Scilly added 108 sites to the HER, of these approximately 25% are in the coastal and intertidal zones.

2.10 Air photographs and LIDAR

Good air photography cover exists for Scilly. It includes photographs taken by the OS, RAF and Admiralty. The National Monument Record holds 1154 specialist oblique records and 516 vertical prints. Historic Environment, Cornwall Council, has a collection of oblique and vertical photographs.

Scilly has 1m resolution Lidar data, together with complete 0.25m aerial photographic coverage (available from the Channel Coastal Observatory <http://www.channelcoast.org/southwest/>).

2.11 Portable Antiquities Scheme

The Portable antiquities Scheme (PAS) only holds eight finds from Scilly on their database, with reference numbers CORN-50CE42, CORN-70BCB3, CORN-FEAC20, CORN-B5D061, CORN-327A62, CORN-31B2A7, SOM-163205 and HAMP-DB29D6.

2.12 Historic Environment Records

2.12.1 The Cornwall and Scilly Historic Environment Record

The Scilly Sites and Monuments Register (SMR) was set up by the Institute of Cornish Studies in 1983 and is currently maintained by Historic Environment, Cornwall Council, as part of the Cornwall and Scilly Historic Environment Record (HER).

The Cornwall Scilly HER contains records for 10 Palaeolithic and Mesolithic sites, 43 Neolithic sites, 684 Bronze Age sites, 107 Iron Age and Romano-British sites, 43 early medieval sites, 63 late medieval sites, 546 post-medieval sites and 88 modern sites.

The Cornwall and Scilly HER also holds copies of grey literature reports for interventions relating to the historic environment in Scilly.

2.12.2 The National Monument Record

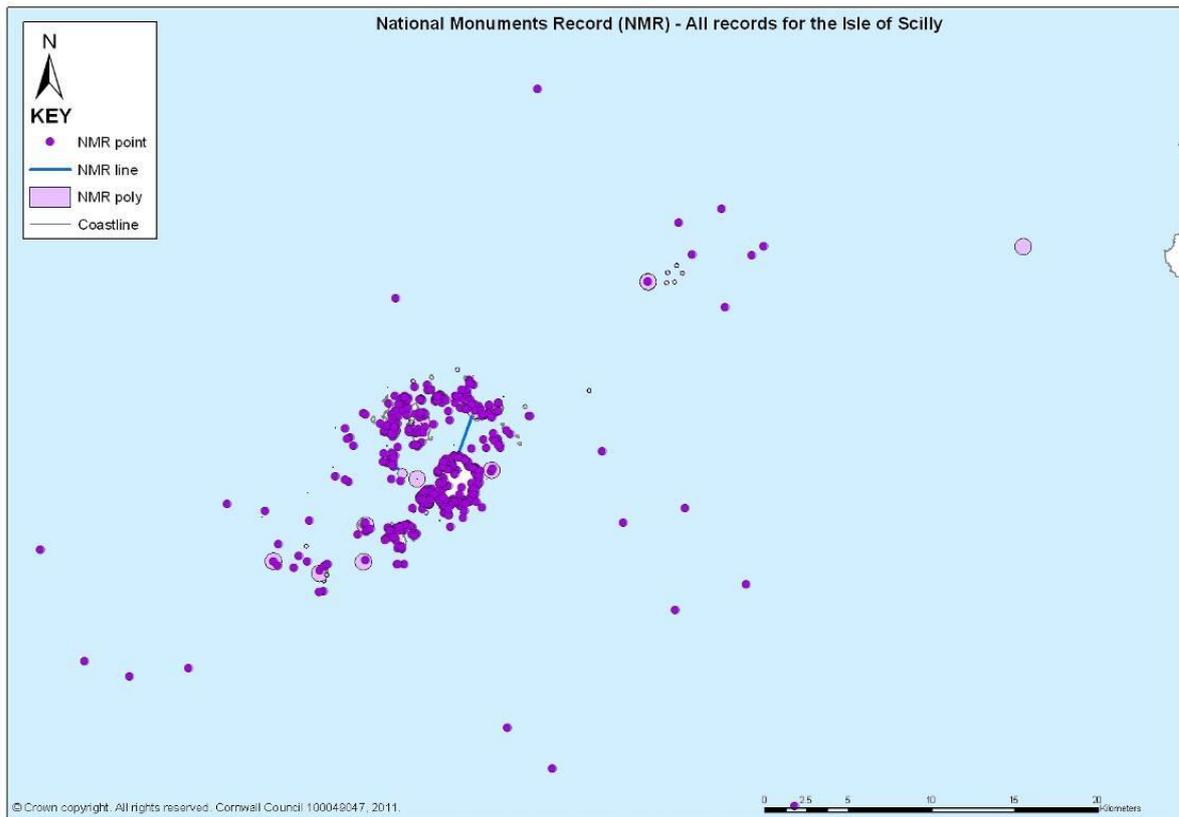


Fig 2.10 Distribution of NMR records for the Isle of Scilly

The National Monument Record (NMR) holds 1462 terrestrial and maritime records for Scilly (Fig 2.10) and 180 NMR event activity reports.

2.12.3 The United Kingdom Hydrographic Office

The United Kingdom Hydrographic Office, Taunton (UKHO) holds 183 wreck and underwater obstruction records for the Isles of Scilly and a large number of charts and maps.

2.13 Museums and archives

2.13.1 The Isles of Scilly Museum

Following the severe gales in the winter of 1962 the small island of Nornour yielded up some remarkable Roman finds, causing some St Mary's residents to establish a local museum. Initially the only viable option was a temporary display in the Wesleyan Chapel during the summer months. After much fundraising and thanks to huge volunteer enthusiasm, the present Museum was opened to the public on 15 July 1967.

The Isles of Scilly Museum (IOSM) is situated in Hugh Town, St Mary's. The collections are extremely diverse, including material from many wrecks, prehistoric and Roman artefacts, natural and social history, local art and much more. In order to preserve links with the rich Scillonian past, the Museum has a comprehensive collection of oral history videos featuring local residents. The Museum's Baxter Room holds over 1200 books and also contains plans, surveys, magazines and assorted paper records relating to the Islands.

The Trustees have the following objectives as far as the IOSM is concerned: to collect, preserve, display and interpret a representative collection of objects, photographs and works of art to illustrate the way of life of the inhabitants of the Isles of Scilly. Within

limits imposed by resources, the Trustees will, on behalf of the IOSM, collect in the following fields: archaeology (terrestrial and marine); fine and decorative art; natural history; social, economic and local history; books; photography and film.

Archaeology

The Trustees will collect, preserve, display and interpret all available archaeological artefacts from the Isles of Scilly. It will, where possible, support any archaeological excavation within the Isles of Scilly and act as a depository for any finds and paper archives. On 20 April 2006 the Museum was awarded the status of Full Accreditation by the Museums, Libraries and Archives Council (MLA); this was renewed in 2010. As the only Accredited Museum in the Isles of Scilly, the Museum is recognised by English Heritage as the depository for material from past, current and future excavations.

Amongst nearly 7000 accessions, the majority of which are archaeological material, the Museum holds finds and records from sites of all periods on Scilly. These include Bronze Age urns from Knackyboy and other entrance graves, the sword and mirror from an Iron Age cist on Bryher, prehistoric and Roman finds from Nornour and Early Christian material from Samson, St Helen's and Tean. There is a large collection of sherds, stone and metal tools and objects from these and many other sites throughout the Islands. They show a rich mixture of imports and local products and can be used to identify Scilly's connections with both mainland Britain and various areas on the Continent at different periods.

Much effort has gone into tracing material from past Scillonian excavations. The process of repatriating artefacts and records began some years ago: for example, Penlee House, Torquay Museum and Historic Environment, Cornwall Council, have sent boxes of material to the IOSM and more is expected, especially from the Royal Cornwall Museum.

Apart from the displayed objects the Museum has extensive stored material. This is shelved in standard boxes, and has been catalogued by site and period; it is available on request to visiting researchers.

Archives

The records, drawings and photographs of excavations carried out on the Islands are stored in files and plan drawers; these are also catalogued and available for research. The entire Accessions Register has been computerised and there is also a computerised index of the Museum storage areas.

2.13.2 The Royal Cornwall Museum

The Royal Cornwall Museum (RCM) holds the majority of the archaeological finds and archives of Cornwall and a proportion for the Isles of Scilly on behalf of the Royal Institution of Cornwall (RIC), a charitable trust (RIC Isles of Scilly Collection List, July 2011). The RCM is a Museums, Libraries and Archives 'accredited' museum. The RCM is also the 'designated' English Heritage store for Cornwall, eligible for storage box grants. All archaeological archives for Scilly are now deposited with the IOSM, St Mary's.

In 2003 the RCM became one of only 14 museums across the country to receive temporary financial support from the Department of Culture, Media and Sport, and Education and Skills, through a programme called Renaissance in the Regions. The purpose of the funding was to build capacity in important regional museums, enabling them to become centres of excellence. Isles of Scilly finds and archives have benefited from recent work that has included reconciliation of documentation and repackaging of the collection in the Basement Store to current standards and a refurbishment of the main gallery displays where Isles of Scilly material is on display.

Over the years, the museum has provided free resources for the study of the Isles of Scilly collection in terms of a specialist archaeological curator and conservator,

equipment and customised research space within the stores. The Curators' library and the Courtney Library reference library are available to researchers.

Some of the archives were placed at the RCM so that the IOSM could exhibit 'displayable' material while the RCM housed the archives for researchers, due to lack of space at the IOSM (Anna Tyacke, previous Curator, pers comm). The majority of the Isles of Scilly collection was 'deposited' by the Ministry of Works/Historic Buildings Commission/English Heritage or the Duchy and are, effectively, on loan. Loan agreements are currently being agreed by the Duchy and the RIC.

Since 2005, the IOSM has requested the return of the above archaeological archives and RCM is in liaison with the Duchy and English Heritage to facilitate the repatriation. The material from Nornour (TRURI: 1993.34) and the Isles of Scilly Electrification Project (TRURI: 1992.100) was returned in 2012 and East Porth, Samson (TRURI: 1993.95), when HE Projects has completed analysis; the remaining archives will then be returned in liaison with the IOSM over a period of time. Some finds and archives were donated to the RCM and these will remain at the museum but could be loaned to the IOSM. The RCM will retain material donated and currently on display in the new refurbished gallery.

2.13.3 Other archives

The British Museum holds some artefacts, including Bonsor's finds from Porth Hellick Down, Normandy Down, Obadiah's Barrow, and Samson. Other material is held at the Museum of Archaeology and Ethnology in Cambridge, the Museum of the Torquay Natural History Society and in an English Heritage store. Some material is also held in private collections of antiquities. Archives for current projects are held by various contractors and researchers.

2.14 Approaches to the study of the historic environment of islands

Approaches to island archaeology were developed during the New Archaeology phase in the early 1970s and, as suited theoretical perspectives of the time, drew inspiration from the natural sciences, particularly island biogeography used to explain island biota. Of special interest was the publication of McArthur and Wilson (1968) that set out principles for understanding the processes for island colonisation by flora and fauna. Two key aspects of their treatise still remain influential today, the first is the distance vs. area effect and the second is founder effect.

Distance vs. area effect sets out the limits to island settlement by proposing the fairly straightforward formula of the distance vs. area, where increases in the distance to the nearest mainland amplifies barriers to successful colonisation while the size of the island (its area), may mitigate this to a certain extent if it is large, but will also exacerbate barriers to colonisation if it is a small island. A complicating matter is 'stepping stone islands' which also have to be considered. Simply stated, big islands close to the mainland will present few barriers to colonising species, while small islands distant from the mainland will present the biggest barriers to colonising species and the expectation will be that there will be minimum species diversity on such islands. An add-on to the latter condition is that 'founder effect' may occur where a species finds itself in a new ecological niche, unchallenged by other species as it had been in its mainland habitat, and evolves in relative isolation to become distinct from its mainland ancestors. This for animals often appears to result in dwarfing, where the animals become much smaller than their mainland variety.

In archaeology, island biogeography has been enlisted to explain why the Mediterranean islands were colonised by humans in the order that radiocarbon dates of the time suggested (Cherry 1981), and why people in islands constructed unique structures, like the carved heads of Easter Island and the Copper Age temples of Malta (Evans 1973).

While few island archaeologists now accept that human activities are governed by the same principles that apply to other animals or plants, the theories developed in island biogeography still have a role in thinking through the differences that islands hold, compared to communities in mainland situations. Cyprian Broodbank (2000) has proposed the term 'islandscapes' as a way of recognising that the seascapes and landscapes that make up island environments are distinct from landscapes as viewed through the typical lens of landscape archaeology. Paul Rainbird (2007) has gone a step further in highlighting the ascendancy of the marine environment in island lives, arguing for an 'archaeology of the sea' that acknowledges the values of fusion, fluidity and flux in island histories. In this, initial assessments of island history should assume, until shown otherwise, that the sea was a highway, allowing for the fusion of cultural traits from a variety of directions, for fluidity in the directions of the contacts and flux in the amount of contacts in any particular direction, with, on occasions, extremely limited direct contact, but always with the expectation among island peoples that contact with outsiders may occur at any time.

Approaches to island archaeology may help us to problematise and theorise our expectations of the Scillonian archipelago at various phases in its history. Firstly, we need to know that we are dealing with an island or islands for any particular time, limiting the use of island archaeology (except in a purely metaphorical sense), to the last 12,000 years. A proxy indicator of a long-term separation from the mainland comes in the form of the Scilly Shrew (*Crocidura suaveolens*), which is unique to the islands (Hosfield *et al* 2008). Within this period it would be useful to know whether other islands, capable of acting as stepping stone islands for humans, existed between Scilly and the mainland. The Seven Stones and other submerged rocks may have remained usable islands for millennia (Hosfield *et al* 2008).

In regard to accessibility, Scilly is visible from the mainland despite the 45km of current sea gap. Potential past usable islands at Wolf Rock or Seven Stones would reduce sea distances to some 32km, but given the low altitudes would not much improve inter-visibility. In human history the earliest evidence for sea travel beyond the sight of land dates to the Upper Palaeolithic in Melanesia, where the island of Manus was settled. More locally we might compare Scilly to St Kilda, the most famous of Atlantic archipelagos, which has evidence of occupation in the Neolithic (Fleming 2005). Scilly in the Neolithic would have attained a similar altitude as today, 50m. By comparison, St Kilda reaches 430m and is 64km from the stepping stone islands of the Outer Hebrides. At the end of the Neolithic in c 2500 cal BC Scilly had an estimated area of 31.7 sq km (Charman *et al* 2012) while St Kilda had an area probably similar to today of 8.5 sq km. Both island groups are situated in the Atlantic and both could be seen from their nearest occupied neighbours. The conditions relating to St Kilda, in its small size and greater distance from neighbour, relative to Scilly, should indicate from an island biogeography perspective that the colonisation of Scilly was an easier undertaking. In regard to the evidence for Neolithic settlement on St Kilda, Fleming (2005, 54) concluded that 'it is obviously wrong to think of the archipelago as so 'marginal' that it was settled reluctantly and late, or so remote that any prehistoric culture must necessarily have developed an eccentric character.'

Anthropologists of migration point out that it is rare for colonisation to take place by *ad hoc* exploration, but is rather usually direct and to a known place. Once settlement has occurred connections with the source community are typically maintained. Causes of migration can be varied but in general fall into the category of either 'push' or 'pull' effects (*cf* Anthony 1990). A push effect occurs when there is an impetus in the home community for a group to depart; this may be, for example, a coping mechanism for population pressure, what Lewis Binford (1968) called 'budding off'. The alternative is the pull effect where there is something at the target destination which attracts people to migrate; this may be the exploitation of new (but known) resources. A further conclusion drawn from the anthropology of migration is that migration is rarely a single event, but more usually a process where the visits to a place only ultimately through time result in long-term residential relocation (Curet 2005). This assumes a migration

and can be considered in relation to the evidence for Scilly, but it may also be the case that new, particularly neighbouring islands come into the orbit of a community through expansion, and there are many circumstances where archipelagos and mainland are part of the same community. For the Aegean Sea Christos Doumas (2004) has noted that all islands have a corresponding part of a larger land mass, the mainland or a bigger island, with which they share cultural links; this he calls the *peraia*.

Moving beyond the direct associations between a community and its *peraia*, the Scilly archipelago, with West Penwith, is geographically located on a significant node in relation to what, following Sir Cyril Fox (1932), we may call the 'western seaways'. Since the first half of the twentieth century geographers and archaeologists have recognised the important influence of the sea in understanding the human history of the Atlantic archipelago. Much of the focus was on maritime routes connecting large parts of the central archipelago; that is, on the east side of Ireland and west side of Britain. Routes were envisaged plying in both directions through and across the Irish and Celtic Seas and heading south to the Bristol Channel, the south-west peninsula of Britain and to Brittany and Galicia and beyond. In the north these passed through the Inner and Outer Hebrides, continuing to the Northern Isles of Orkney and Shetland and beyond, towards the Faeroes, Iceland and Scandinavia. Jonathan Wooding (1996) has reviewed the character of the western seaways, noting the coastal geography, prevailing winds, currents, tides and shoals and off-shore rocks, and finds that 'The societies which have existed along the western sea lanes have regularly navigated these forbidding waters, finding various technological solutions to the conditions. Initially disconcerting, the conditions command respect, but are not so terrifying as to compel travellers to go overland by preference' (Wooding 1996, 6).

It is the long-term experience of these waters which is essential to their use and as such, it is not surprising that a number of the scholars of the western seaways were based at the University in Aberystwyth where the vista from their windows overlooking the Irish Sea may have helped shape their perspectives. Emrys G Bowen was professor of geography and anthropology and was the last great advocate of the western seaways concept in its first phase. Bowen (1970; 1972) provides a history of the development of thinking on this matter, showing that those educated in classical traditions were influenced by concepts of the Roman Empire where 'the sea divides; the land unites'. Later scholars such as O G S Crawford, H J Fleure and Sir Cyril Fox took the opposite view and can be seen to be influential in allowing the archaeologist Gordon Childe to imagine the Irish Sea as having 'grey waters as bright with Neolithic argonauts as the western Pacific is today' (quoted in Bowen 1970, 14). This view of the western seaways was taken up with vigour and they became identified as the source for everything from megalithic tombs (Daniel 1941) to Celtic Christianity (Bowen 1969). However, although such other luminaries of twentieth century archaeology as Christopher Hawkes, Stuart Piggott, Raleigh Radford and Charles Thomas had found good uses for the concept, in the 1970s few other academic scholars shared such vistas and, with prehistorians rejecting migrationist and diffusionist views of culture history, the western seaways fell out of favour. In the twenty-first century the western seaways have been revived by a new group of scholars, not that they completely went away, as illustrated in a review by Cummings and Fowler (2004). Many archaeologists are finding the role of communication by sea a useful explanatory framework for understanding both similarities and differences in the material remains in various periods of the prehistoric past (e.g. Cunliffe 2001). The nuanced interpretations available derived from the debates following the rejection of culture history as a descriptive and explanatory device. This means that archaeologists are now better able to interrogate and interpret exotic material and proxy indicators as evidence of overseas, and perhaps regular, contact, without compromising understandings of local identity and difference.

3 Palaeolithic and Mesolithic

Edited by Trevor Kirk with contributions from Kevin Camidge, Dan Charman, Ralph Fyfe, Charles Johns, Andy M Jones, Steve Mills, Jacqui Mulville, Amelia Pannett, Paul Rainbird, Helen M Roberts, and Robert Scaife.

3.1 Introduction

The main characteristics of Scilly's Palaeolithic and Mesolithic resource are summarised in this review. These periods make brief cameo appearances in earlier assessments of Scilly's archaeological resource but have produced scant archaeological and environmental evidence by comparison with Scilly's post-Mesolithic prehistory (Ashbee 1986; Ratcliffe 1989; Ratcliffe and Straker 1996; Johns *et al* 2004). However, the depth and quality of environmental data, especially for the Mesolithic, has been substantially improved by the results of the Lyonesse Project (Charman *et al* 2012) and there is emerging evidence for Mesolithic flintworking to supplement the only previously recorded flint scatter of this period at Old Quay, St Martin's (Pannett 2007). The main characteristics of Scilly's Palaeolithic (c 700,000 to 10,000 BP) and Mesolithic (c 10,000 to 6,000 BP) resource are summarised in this review.

3.2 Palaeolithic (c 700,000 – 10,000 BP)

3.2.1 Landscape and environmental background

Current knowledge of the Palaeolithic environmental background of Scilly was summarised recently for the South West Archaeological Research Framework (Hosfield *et al* 2008, 27). The earliest pollen evidence for vegetation in the Devensian in south-west England is from Scilly and published by Scourse (1985; 1986; 1991) as part of his research investigating the extension of the Irish Sea glacier. Formerly it was thought that glacial ice did not spread as far as the south of England in the last glacial episode (c 21,000 BP) but his research suggests that it reached the northern flanks of Tresco, Bryher and St Martin's. The resulting glacial deposits include flint (originally from the floor of the Irish Sea) that was subsequently exploited by prehistoric communities in Scilly.

Scourse also carried out pollen analyses on organic lenses thought to have accumulated in small lakes or ponds during the build up of solifluxion of granitic head in Scilly. These are exposed in section at Carn Morval and Watermill Cove, St Mary's, and Bread and Cheese Cove, St Martin's, and the pollen suggested open, largely grassland-dominated herbaceous vegetation during the Upper Palaeolithic. Similar arctic tundra conditions were also identified in deposits from Porth Seal on St Martin's. High *pinus* values were interpreted as evidence of climatic deterioration (*cf* Hosfield *et al* 2008, 28).

3.2.2 Palaeolithic archaeology

The only possible Palaeolithic artefact from Scilly is an unprovenanced curved-backed point held at the Royal Cornwall Museum (Truro). This piece may be an Upper Palaeolithic 'penknife point', such as are found in cave sites throughout Britain (Berridge and Roberts 1986, 8-9; Fig 3.1), although similar points are also known from Mesolithic contexts on the mainland.

This artefact is an intriguing indication that people were visiting the archipelago during the climatic improvements ahead of the Younger Dryas cold spell. The penknife point, a member of the continental *Federmessergruppen*, ought to date to between 12,000 and 11,000 BP, after Scilly had become separated from the mainland. The distribution of earlier Upper Palaeolithic material from the Aurignacian (c 31,000 BP), has led Paul Pettit (2008) to propose a small-scale colonisation event taking in the west of Cornwall, presumably including Scilly, thus allowing for the possibility of finds from that period, although there is currently no other evidence of human presence in Scilly during the Palaeolithic.



Fig 3.1 The penknife point from Scilly (photo: Anna Tyacke)

3.2.3 The Isles of Scilly resource: aspects and prospects

The palaeoclimatic and palaeoenvironmental evidence from Watermill Cove Site of Special Scientific Interest (SSSI), St Mary's, is indicative of the potential for sites primarily known (or designated) for their geological qualities to illuminate the Palaeolithic environment and climate in Scilly. Extreme serendipity might also lead such sites to yield Palaeolithic material culture and/or fauna.

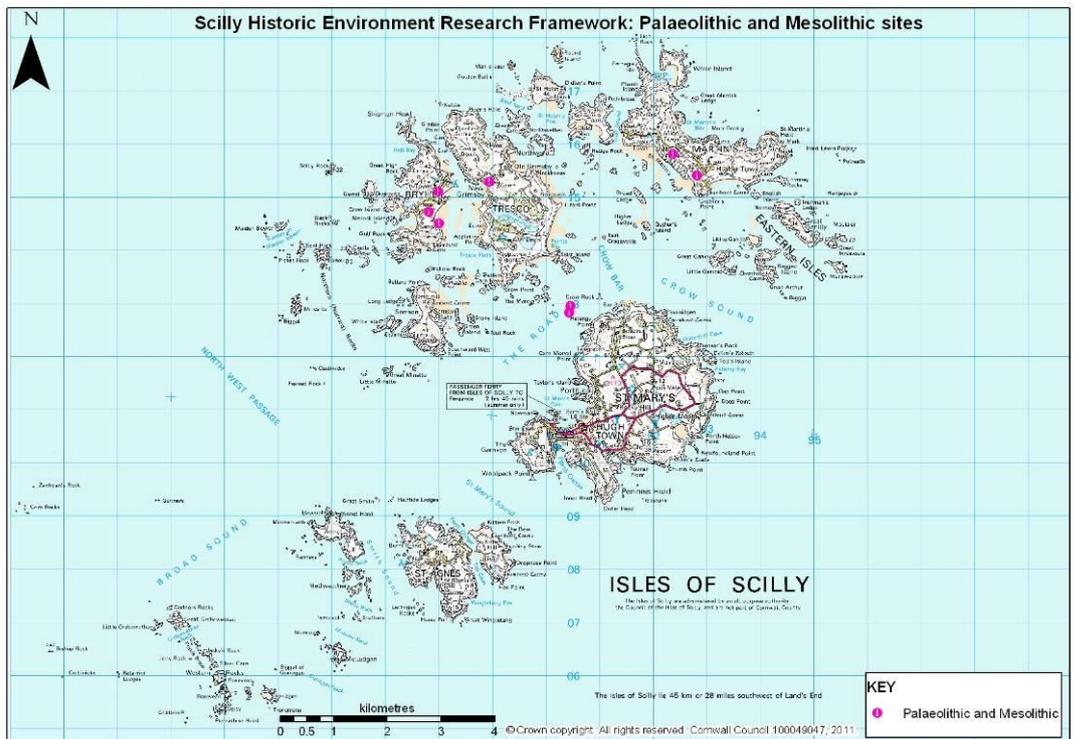


Fig 3.2 Distribution of Palaeolithic and Mesolithic sites recorded in the Cornwall and Scilly HER

3.3 Mesolithic (c10,000-6000 BP)

3.3.1 Landscape

The sub-surface bathymetry between the Isles of Scilly and Penwith, Cornwall, suggests that the archipelago may have been surrounded by the sea as early as c 12,000 BP (c 13,130–12,700 cal BC). Rocks, such as the Seven Stones and one or two others that are currently largely submerged, would have remained as islands for some millennia. Although this hypothesis is untested, a possible Late Glacial or Early Postglacial separation raises interesting questions related to island biogeography. The unusual small mammal fauna goes some way to support early island status. Pernetta and Hanford (1970) and Turk (in Butcher 1978, 99) discussed the apparently relict Postglacial survival of the root vole (*Microtus oeconomus*) and the presence of the Scilly Shrew (*Crocidura suaveolens*), which is only found on the islands (cf Hosfield *et al* 2008, 27).

Current evidence suggests that at the end of the last glaciation the archipelago may have consisted of a single landmass roughly 17km long and 8.5km wide stretching from the Western Rocks to the Eastern Isles and from Peninnis to Shipman Head (e.g. Johns *et al* 2004). As the ice sheets melted the sea level rose and perhaps by as early as 4,000 BC submergence of low lying areas led to the formation of a number of different islands. To the north the modern islands of St Mary's, Bryher, Tresco, and St Martin's were encompassed in one large island, while to the south St Agnes, Annet and the Western Rocks constituted three smaller tracts of land (Fig 3.3).

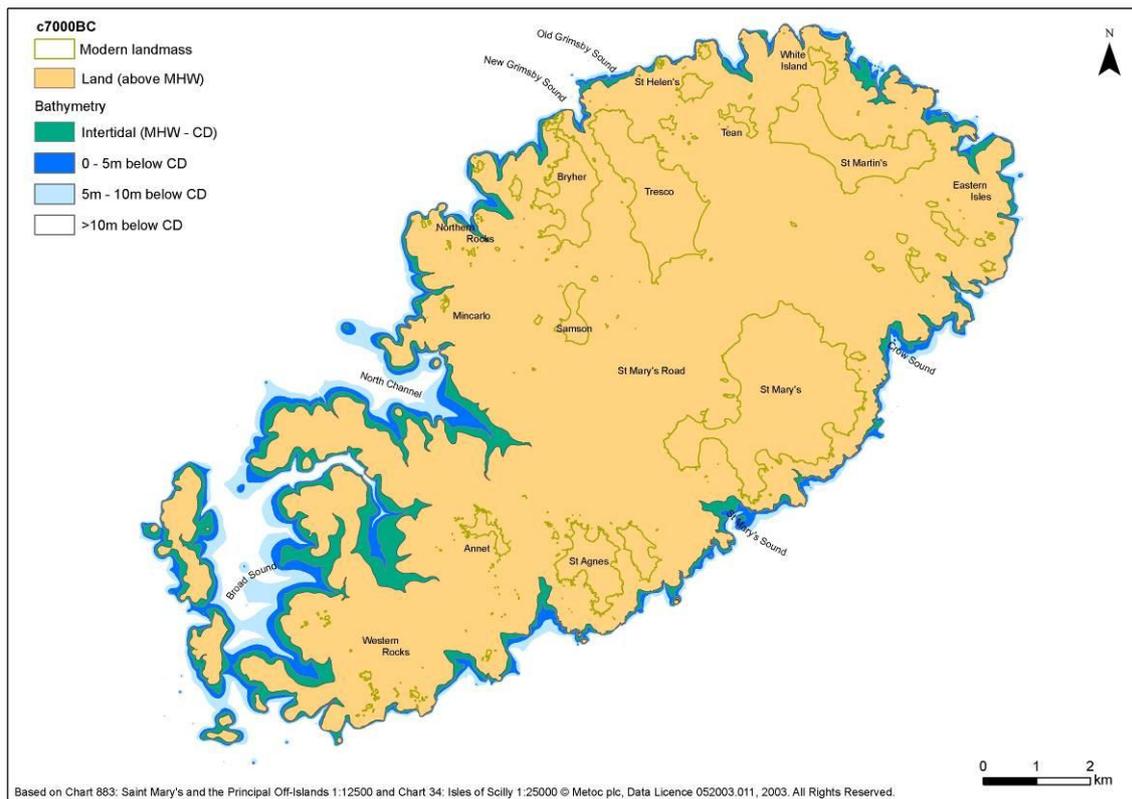


Fig 3.3 Inferred submergence model c 7,000 BC, based on data from the Lyonesse Project (Charman *et al* 2012) and shown as simulations of the modern Admiralty Chart. Land area (brown) is defined as above MHWS, and the intertidal area (green) as between chart datum and Mean High Water Springs (MHWS). Blue and white areas are below chart datum (dark blue 0 to -5 m CD, pale blue -5 to -10 m CD, white < -10 m CD)

3.3.2 Environmental background

The Mesolithic environmental background of Scilly was summarised recently by Hosfield *et al* (2008, 41) for the South West Archaeological Research Framework. The longest pollen sequence is that at Higher Moors, with Late Mesolithic oak-ash and hazel woodland at the base of the sequence (5725-5378 cal BC, HAR- 3695). Birch scrub in this context may indicate woodland regeneration following small-scale clearance by gatherer-hunters (Scaife 1984; Ratcliffe and Straker 1996; Hosfield *et al* 2008, 41).

The Late Mesolithic-Early Neolithic intertidal peats at Par Beach on St Martin's and at Porth Mellon on St Mary's indicate mixed deciduous woodland with birch, oak, hazel, lime, holly, alder and willow (Ratcliffe and Straker 1996; Hosfield *et al* 2008, 41).

Samples of intertidal peat taken from Porth Hellick, St Mary's, in September 2010 for the Lyonesse Project indicate establishment or expansion of hazel-oak woodland at the beginning of the Mesolithic: 9750-9280 cal BC (OxA-23858, 9945 ±60) and 9450-9280 cal BC (SUERC-32915, 9450-9280 cal BC) (Charman *et al* 2012).



Fig 3.4 Mesolithic submerged forest in St Mary's Roads (photo: Kevin Camidge)

A submerged forest was discovered on the seabed in St Mary's Roads by diver Todd Stevens in 2006. Subtidal samples from the site taken during the Lyonesse Project indicate rapid changes in Mesolithic forest conditions, although the deposits may be compressed and it is possible that the changes occurred over a longer period of time. The pollen spectra show a sequence of vegetation change through the Mesolithic period. A herb-rich grassland was gradually colonised by oak, birch and hazel woodland. A large peak in charcoal at the transition to the overlying peat is associated with a peak in birch and a decline in oak, suggesting possible disturbance or clearance by fire, followed by a phase which sees recovery of oak-dominated woodland, with an increasingly wet surface indicated by the presence of willow. The final phase sees a change to an open marsh dominated by sedges, changing to grass dominance, with increasing levels of salinity possibly from rising sea-levels (Charman *et al* 2012).

Lyonesse Project subtidal samples from the channel between St Martin's and Nornour indicate open ground with moderate-high saltmarsh indicators and low background

woodland in the later Mesolithic, at 5310-5050 cal BC (SUERC-32919, 6215 ±35) (Charman *et al* 2012).

3.3.3 The Isles of Scilly resource: aspects and prospects

Mesolithic flints are recorded at:

- Old Quay, St Martin's (assemblages from eroding cliff-face combine Mesolithic and Neolithic flints and Early Neolithic Hembury-style Ware);
- Knackyboy Cairn, St Martin's (borer-needle in association with flints in rock cleft);
- The Brow, Bryher (Mesolithic and Neolithic flints);
- The Town, Bryher (Mesolithic blade);
- Veronica Farm, Bryher (tranchet axe sharpening flake);
- New Grimsby, Tresco (possible Mesolithic bladelet);
- Halangy Down, St Mary's (geometric microlith);
- Porthcressa, St Mary's (unfinished pecked hammer); and
- Unprovenanced flints (including Larnian blades).

Ashbee (1986, 185) suggested that, although there was meagre positive evidence of Mesolithic occupation in Scilly, rising sea levels may have obliterated much evidence for occupation during this period. Artefactual evidence has not greatly increased in the last 25 years, the main discovery being the 20 or so pieces collected from the cliff face at Old Quay, St Martin's, which is the only identified Mesolithic flintworking site on the Islands (Ratcliffe 1989, 33; 1994, 13). Although the evidence is sparse, it has long been considered that Scilly was visited on a seasonal basis by groups of Mesolithic hunter gathers travelling by boat from the mainland (e.g. Ratcliffe 1989, 33; Ratcliffe and Johns 2003, 3).

In 2006 Amelia Pannett carried out an initial assessment of the lithics collection held by the Isles of Scilly Museum, as part of the 'Islands in a Common Sea Project' (Pannett 2007). Clear evidence for Mesolithic activity was present in the archive, with several collections of blades, many of which showed characteristic signs of Mesolithic technology: platform preparation and dorsal scar patterns indicative of the use of a carefully prepared blade core. Crested and truncated blades were also recognised, together with two roughly manufactured microliths (Pannett 2007).

Despite the unprovenanced character of the material examined in the lithic archive, it provided important details about the nature and potential of the resource on Scilly. The range of tools recovered by collectors is interesting and adds further to the current slight evidence for Mesolithic occupation in the Islands. Aside from the examination of excavated lithic assemblages, there are a number of known findspots which could be systematically investigated in order to recover complete *in situ* assemblages, in particular Old Quay on St Martin's and a further scatter of lithics from a garden on the south side of the island. Both assemblages would benefit from assessment, perhaps using a test pitting strategy to determine the extent and nature of the *in situ* material. Fieldwalking in available fields could also be undertaken to identify further scatters and determine their distribution within the landscape.

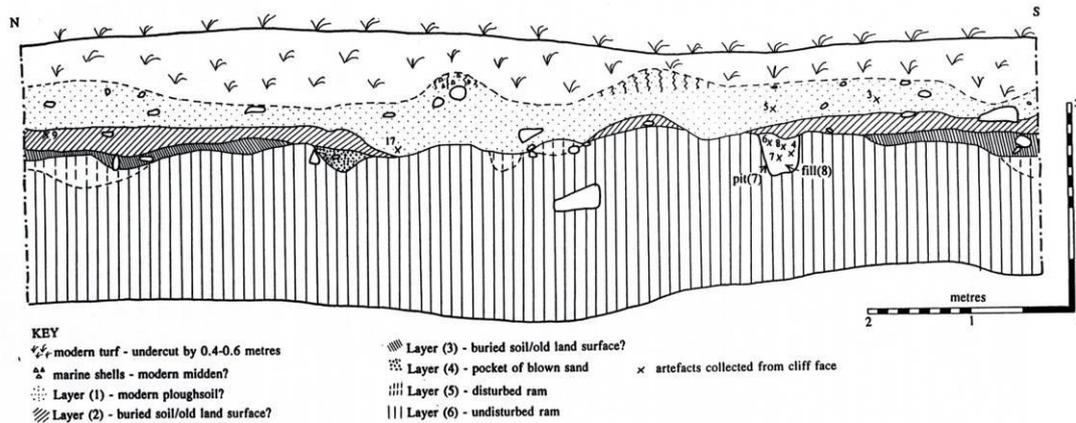


Fig 3.5 Detail from the cliff section at Old Quay St Martin's, drawn by CAU in 1993

It is possible that further Mesolithic flints from Scilly reside unidentified in museum collections (e.g. Royal Cornwall Museum, British Museum) and in private collections. Review of stone assemblages from Scilly by a lithic specialist may reveal previously unidentified Mesolithic material in existing museum archives and private collections. It is important that the results of such a review should be widely disseminated.

3.3.4 Animals

In common with more northerly British outer island groups, and unlike the Channel Islands (e.g. Lister 1995), there is no evidence for pre-glacial fauna on Scilly. Research suggests the islands were periglacial during the Ice Age and, while there is the possibility of continuity for some terrestrial species (e.g. the Scilly Shrew), the survival of any other species remains unknown. Even in the absence of terrestrial food species the Islands would have provided substantial marine resources for any early settlers. There is recent evidence suggestive of human occupation as early as the sixth millennium cal BC from burning events in the pollen record (Charman *et al* 2012) and this date is in agreement with data from Scottish isles where even the more remote northerly island groups, with a similarly sparse terrestrial fauna, were inhabited (e.g. Shetland and Orkney). British inner islands and coastal sites have provided the best evidence for early human animal interactions through the direct reconstruction of diets using stable isotope analysis of skeletal remains. Analysis revealed that Mesolithic people who lived relatively close to the coast relied on a wide resource base, exploiting a significant proportion of marine and terrestrial foods (e.g. Schulting *et al* 2003).

Paul Ashbee considered that the question of deer in Scilly was by far the most important concern for vertebrate fauna study, with bones of large and small red deer having been found at Halangy Porth, St Mary's, on St Agnes and on Nornour (Ashbee 1986, 194-5). It is possible that red deer had been introduced by the Mesolithic period and that woodland burning was intended to encourage the growth of new willow shoots that would attract red deer to feed (J Mulville, pers comm), supporting the idea of an early controlled, insular deer economy suggested by Ashbee.

There are indications, for example, that island environments in Scotland were being adapted for human use by the introduction of red deer, and any such Mesolithic activity in Scilly may be established archaeologically by proxy indicators from similarly introduced species.

The identifiable Mesolithic flints indicate that fisher-gatherer-hunter peoples exploited the resources of the Islands. Coastal inundation is likely to inhibit the search for sites of this period but well-preserved submerged remains from the Mesolithic have been identified in the Solent. The evidence of domestic cattle in a midden at Ferriter's Cove in south-west Ireland, dated to 4495-4195 cal BC, has been proposed as a seeding of

stock by Late Mesolithic peoples in an environment where indigenous large mammals had not existed prior to human seaborne colonisation (Woodman and McCarthy 2003). Domesticated cattle would only have been available on the European continent, suggesting long-distance contacts by sea, necessitating the rounding of the South West peninsula, perhaps even via Scilly, and showing that as far back as the Mesolithic contact by sea was not by necessity with nearest neighbours. As in many of the Scottish islands, deliberate seeding of red deer has been argued for Late Mesolithic Ireland, but it has also been proposed that the people there were more reliant on marine resources than their neighbours across the Irish Sea. This may have been true for the seasonal visitors to Scilly in the Mesolithic too, perhaps continuing into the Neolithic. In this regard, it is important to note the discovery and excavation of wooden fish traps along the former Liffey estuary in modern Dublin, the traps consisting of staked fences and baskets (McQuade and O'Donnell 2007). The pull effect for Mesolithic seafarers may have been Scilly's coastal flats, at a later stage inundated, providing myriad opportunities for the trapping of fish, with the outer shore providing hunting grounds for seal and sea birds. The Mesolithic-Neolithic transition in Scilly may be illuminated by further work at sites that have yielded material culture of both periods, notably Old Quay, St Martin's.

3.3.5 Transport

No remains of prehistoric boats have been found in Scilly. The most likely type of boat used by Mesolithic adventurers to the islands would have been hide boats made by stretching stitched-together animal skins over a lightweight framework of wood or wicker. This makes a very lightweight boat, which can be bowl- or boat-shaped. Hide boats vary in length from 1.5m (usually circular) to about 10m; 12m is the practical limit for this type of construction (McGrail 1998). Another common form of prehistoric boat is the log boat but European logboats are generally considered to be only suitable for use in extremely calm waters and not as seagoing craft (Ransley *et al* 2011). There is no evidence of mast steps or the use of oars in Europe until the middle of the first millennium BC: '*Mesolithic and Neolithic seamen would have used paddles*' (McGrail 2001).

3.4 Scientific dating

3.4.1 Radiocarbon dates

The 50 radiocarbon determinations listed in Figure 3.6 have all been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period to which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they appear.

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
Q-2410	34,500+ 985 - 800	38284-36878	Porth Seal	Organic deposit	Scourse 1991
Q-2408	33,050+ 960 -800	36576-35040	Watermill Cove	Organic deposit	Scourse 1991
Q-2409	25,670+ 560 -530	28752-28332	Porth Seal	Organic deposit	Scourse 1991
Q-2356	24,490+ 960 -860	27651-26651	Carn Morval	Organic deposit	Scourse 1991

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
Q-2358	21,500+ 890 -800	24141-23256	Carn Morval	Organic deposit	Scourse 1991
SUERC-38109	11385 ±35	11410-11190	St Mary's Roads	Sediment humin fraction from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38108	11315 ±40	11370-11150	St Mary's Roads	Sediment: humic acid from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38104	11035 ±35	11150-10730	St Mary's Roads	Sediment humin fraction from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38103	10950 ±35	11010-10700	St Mary's Roads	Sediment: humic acid from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38102	10670 ±35	10740-10600	St Mary's Roads	Sediment humin fraction from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38101	10535±35	10670-10460	St Mary's Roads	Sediment: humic acid from submerged clay & peat	Marshall <i>et al</i> 2012
OxA-23858	9945 ±60	9750-9280	Porth Hellick	Wood: single twig fragment, 19cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-32915	9915 ±35	9450-9280	Porth Hellick	Wood: unidentified twig, 24cm below surface of intertidal peat	Marshall <i>et al</i> 2012
OxA-25790	9185±45	8550-8280	Great English Island Neck (Nornour Channel)	Charcoal, knotted wood fragment too distorted for identification, 0-1cm below surface of submerged peat	Marshall <i>et al</i> 2012
SUERC-40873	8740 ± 35	7960-7600	St Mary's Roads	Organic clay: humin fraction from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-40872	8375 ± 35	7540-7340	St Mary's Roads	Organic clay: humic acid from submerged clay & peat	Marshall <i>et al</i> 2012
OxA-25612	7490 ± 45	6450-6230	St Mary's Roads	Plant remains, indet. possible stem fragments from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38100	7695 ±35	6610-6450	St Mary's Roads	Sediment humin fraction from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38099	7500±35	6440-6250	St Mary's Roads	Sediment humic acid, from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-28995	6980 ±35	5990-5750	St Mary's Roads	Peat: humic acid, 27-28cm below surface of submarine peat	Marshall <i>et al</i> 2012
HAR-3695	6630±100	5725-5378	Higher Moors	Peat	Scaife 1984
HAR-3695	6630±100	5490-5050	Higher Moors	Peat	Scaife 1984
SUERC-40883	6325 ± 35	5370-5220	St Mary's Roads	Peat: humic acid, 20-21cm below surface of submarine peat	Marshall <i>et al</i> 2012

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
SUERC-40884	6315 ± 35	5370-5210	St Mary's Roads	As SUERC -40883	Marshall <i>et al</i> 2012
SUERC-26629	6230 ±35	5310-5060	St Mary's Roads	Wood (<i>Betula</i> sp.) embedded in ?eroded surface submarine peat	Marshall <i>et al</i> 2012
SUERC-32919	6215 ±35	5310-5050	Great English Island Neck (Nornour Channel)	Monocot stems, <i>Phragmites?</i> 2 cm below surface of submerged peat	Marshall <i>et al</i> 2012
SUERC-28994	6175±30	5220-5020	St Mary's Roads	Wood (<i>Alnus glutinosa</i>) just below upper charcoal peak	Marshall <i>et al</i> 2012
SUERC-40877	6170 ± 35	5220-5000	St Mary's Roads	Peat: humic acid, 11-12cm below surface of submarine peat	Marshall <i>et al</i> 2012
SUERC-40882	6170 ± 35	5220-5000	St Mary's Roads	Peat humin fraction, 14-15cm below surface of submarine peat	Marshall <i>et al</i> 2012
SUERC-40881	6160 ± 35	5220-4990	St Mary's Roads	Peat: humic acid, 14-15cm below surface of submarine peat	Marshall <i>et al</i> 2012
OxA-25613	6130 ±40	5220-4940	Great English Island Neck (Nornour Channel)	c 30 monocot ?stem fragments, 1 cm below surface of submerged peat	Marshall <i>et al</i> 2012
OxA-22484	6134±34	5220-4960	St Mary's Roads	Wood (<i>Betulaceae</i>) embedded in submarine peat 14-15cm below surface. Major decline in tree pollen	Marshall <i>et al</i> 2012
SUERC-40876	6120 ± 35	5210-4940	St Mary's Roads	Peat: humic acid, 11-12cm below surface of submarine peat	Marshall <i>et al</i> 2012
SUERC-38084	6040±35	5050-4830	St Mary's Roads	Monocot stem fragments + wood fragments, 27-28cm below surface of submerged peat	Marshall <i>et al</i> 2012
SUERC-28993	6010±35	5000-4790	St Mary's Roads	Leaf (<i>Phragmites</i> sp.) from seabed peat	Marshall <i>et al</i> 2012
SUERC-40875	6010±35	5000-4790	St Mary's Roads	Peat: humic acid 1-2cm below surface of submarine peat	Marshall <i>et al</i> 2012
OxA-25614	5995 ±40	5000-4780	Great English Island Neck (Nornour Channel)	2 monocot ?stem fragments, 5-6 cms below surface of submerged peat	Marshall <i>et al</i> 2012
SUERC-40874	5965±35	4950-4720	St Mary's Roads	Peat: humic acid, as SUERC-40875	Marshall <i>et al</i> 2012
SUERC-26631	5860±35	4800-4620	St Mary's Roads	Wood (<i>Salix</i> sp.) from submarine peat	Marshall <i>et al</i> 2012

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
OxA-25690	5784±33	4720-4540	St Mary's Roads	Wood (<i>cf Salix/Populus</i> sp.) 21-22cm below surface of submerged peat	Marshall <i>et al</i> 2012
OxA-23861	5720 ±55	4710-4450	St Mary's Roads	Unidentified woody stems, 9-10 cms below surface of submarine peat	Marshall <i>et al</i> 2012
SUERC-26630	5680 ±35	4610-4450	St Mary's Roads	Leaf: <i>cf Phragmites</i> sp. embedded in surface of ?eroded submarine peat	Marshall <i>et al</i> 2012
GU-5222	5410±70	4366-4046	Par Beach	Oak in surface of intertidal peat	Ratcliffe and Straker 1996
GU-5061	5210±50	4230-3947	Par Beach	Base of intertidal peat deposit	Ratcliffe and Straker 1996
OxA-21892	5614 ±37	4540-4350	St Mary's Roads	Leaf: <i>cf Phragmites</i> sp. (D Charman) – not the same leaf as SUERC-26630. Embedded in surface of ?eroded submarine peat	Marshall <i>et al</i> 2012
SUERC-38241	5590 ± 30	4490-4350	St Mary's Roads	Twig and seeds (<i>Betula</i>), 9-10cm below surface of submerged peat	Marshall <i>et al</i> 2012
OxA-25681	5570±32	4460-4340	St Mary's Roads	Wood (? <i>Betula</i> , not oak). As SUERC-38241	Marshall <i>et al</i> 2012
SUERC-32918	5445 ±30	4350-4240	St Mary's Roads	Bulk: <i>Phragmites</i> stems, 9-10 cms below surface of submarine peat	Marshall <i>et al</i> 2012
OxA-25680	5435±32	4350-4230	St Mary's Roads	Wood (? <i>Betula</i> , not oak), 2-2.5cm below surface of submerged peat	Marshall <i>et al</i> 2012
SUERC-32917	5360±30	4330-4050	St Mary's Roads	Wood (unidentified stem fragment), 0-1cm below surface of submarine peat	Marshall <i>et al</i> 2012

Fig 3.6 List of Palaeolithic and Mesolithic radiocarbon dates

3.4.2 OS� dating

Optically Stimulated Luminescence (OSL) dating was carried out on quartz from an intertidal sample recovered from Porth Hellick and Porth Mellon, both on St Mary's (Roberts, in Charman *et al* 2012).

Location	Lab no.	Context	Material	OSL Age	Calibrated date (95% confidence)
Porth Hellick, St Mary's	184/LPPH-1A	0.16 ± 0.01m	Quartz	12970 ±690 BP*	12350-9580 cal BC
Porth Mellon, St Mary's	161/LPPM1-1	15-17cm below surface of intertidal peat	Quartz	4750 ±1210 BP*	5170-3210 cal BC

Fig 3.7 List of Palaeolithic and Mesolithic OS� Ages expressed as years before AD 2010, rounded to the nearest 10 years

4 Neolithic and Early Bronze Age

Edited by Andy M Jones from contributions by Eleanor Breen, Kevin Camidge, Dan Charman, Ralph Fyfe, Duncan Garrow, Charles Johns, Trevor Kirk, Steve Mills, Jacqui Mulville, Amelia Pannett, Henrietta Quinnell, Paul Rainbird, Helen M Roberts, Gary Robinson, Katharine Sawyer, Fraser Sturt and Robert Scaife.

4.1 Introduction

The Isles of Scilly contain a large number and diverse range of Neolithic and Early Bronze Age sites and artefacts ranging from pottery through to entrance graves, which are now thought to be of Bronze Age date. The Islands also hold a wealth of environmental data in the form of buried peat deposits. The rich archaeological record and the Islands' position at the 'gateway' to the Atlantic façade means that there is the potential for major research questions relating to the transition to the Neolithic, as well as questions relating to patterns of exchange and contact throughout the Neolithic and Bronze Age periods. The main characteristics of Scilly's Neolithic and Early Bronze Age (c 4000 cal BC to 1500 cal BC) resource are summarised in this review.

4.2 Chronology

While it is accepted archaeological terminology it must be emphasised that it is artificial to draw a boundary between the Late Neolithic and the Early Bronze Age. At a national scale the Bronze Age marks the introduction of metalwork, changes in pottery styles, the increased occurrence of single burial traditions and changes in monumental building. At a regional scale there are hints at broad changes in religious, agricultural and social practices during the later half of the third millennium cal BC, but there is also evidence for a large measure of continuity in the archaeological record. Present evidence might suggest that Scilly was not permanently settled until the Early Bronze Age and that the few Neolithic artefacts and features found represent occupation of a more temporary nature. However, with the exception of the tor enclosures and quoits in Penwith and taking into account the small scale of the Islands, the evidence may not be that different from the mainland – i.e. small pits, pottery and flints – and Cornwall is not considered to have been unpopulated during the Neolithic.

The Early Bronze Age of Scilly saw major interventions within the Island landscape. The archaeological record for this period is marked by burial and ceremonial monuments such as entrance graves, cairns and standing stones, and an apparent absence of recognisable settlement. Because of the very definite increase of burial-type monuments in Cornwall during the full Early Bronze Age after 2000 BC, a Beaker phase is distinguished between 2500-2000 BC, although there is currently only one sherd of possible Beaker pottery from Scilly (from Bonfire Carn, Bryher).

For the purposes of this chapter the periods have been broken down as follows: Early Neolithic (c 4000 cal BC to 3400 cal BC); Middle to Late Neolithic (c 3400 cal BC to 2500 cal BC); Beaker phase (c 2500-2000); Early Bronze Age (c 2000 to 1500 cal BC). Tables of radiocarbon determinations and OSL ages relating to the period are presented at the end of the chapter (Figs 4.13 and 4.14).

4.3 Environmental background

By the beginning of the Neolithic period St Agnes and the other western islands had separated from the main island, and the development of a more extensive intertidal zone continued throughout the period. St Mary's Roads, which had previously held freshwater marsh, was succeeded by saltmarsh by c 4000 cal BC (Fig 12.6). By the end of the Neolithic in 2500 cal BC a major change to the main island group had occurred, with tidal flooding between the islands at high tide. Tresco, Bryher and Samson remained joined at all times but some areas between St Martin's and Tresco and a wide area of St Mary's Roads were below MHWs and consequently flooded during many high tides (Fig 4.1; Charman *et al* 2012).

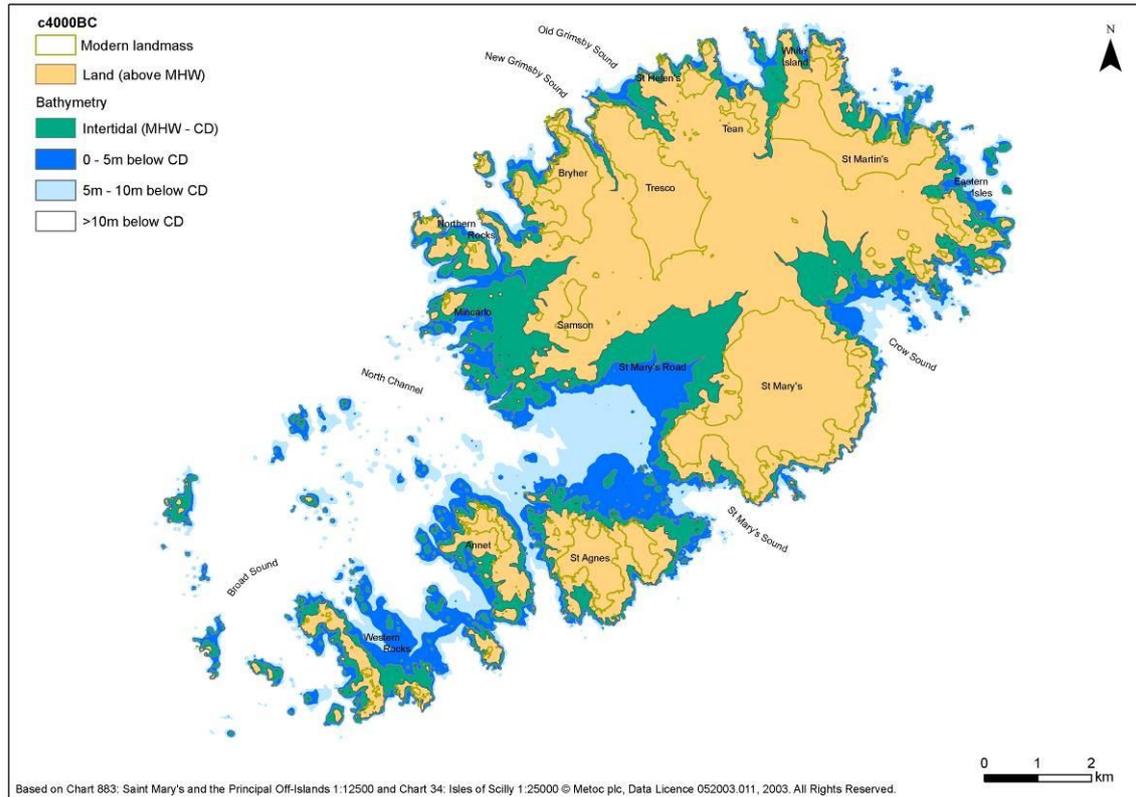


Fig 4.1 Inferred submergence model, c 4000 cal BC, based on data from the Lyonesse Project (Charman et al 2012); all details as in Fig 3.3

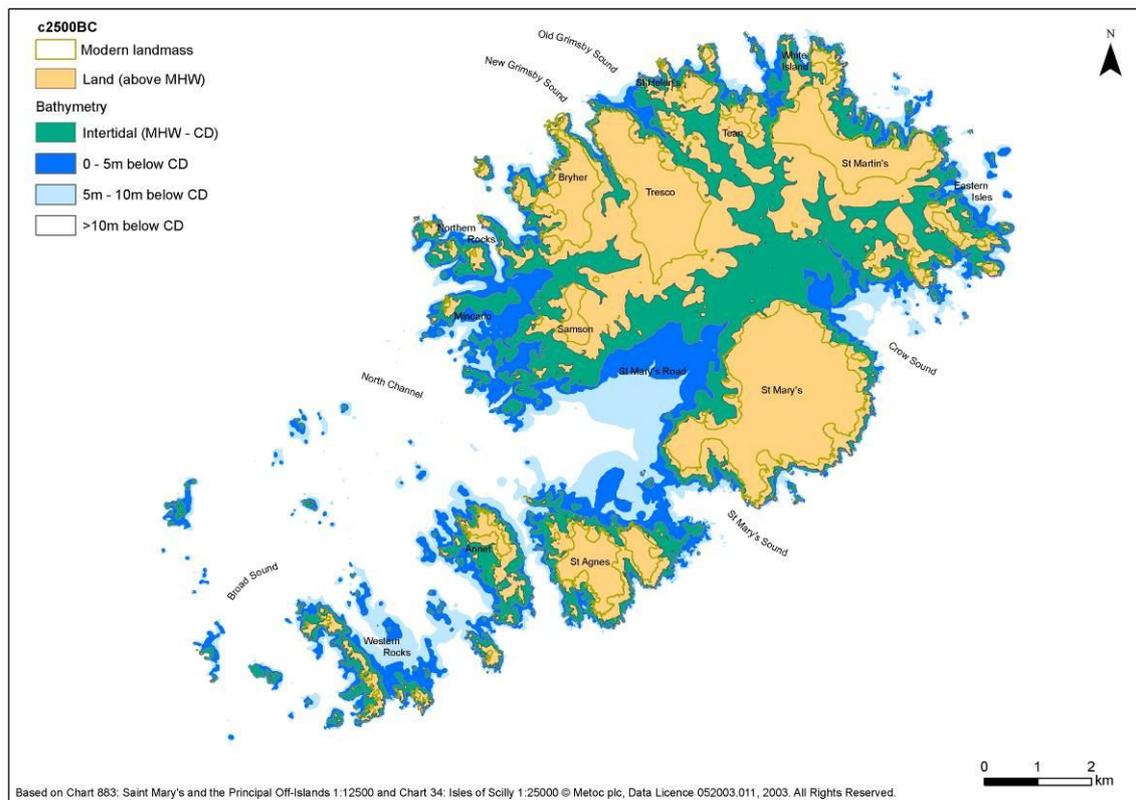


Fig 4.2 Modelled land and intertidal areas, c 2500cal BC; all details as in Fig 3.3

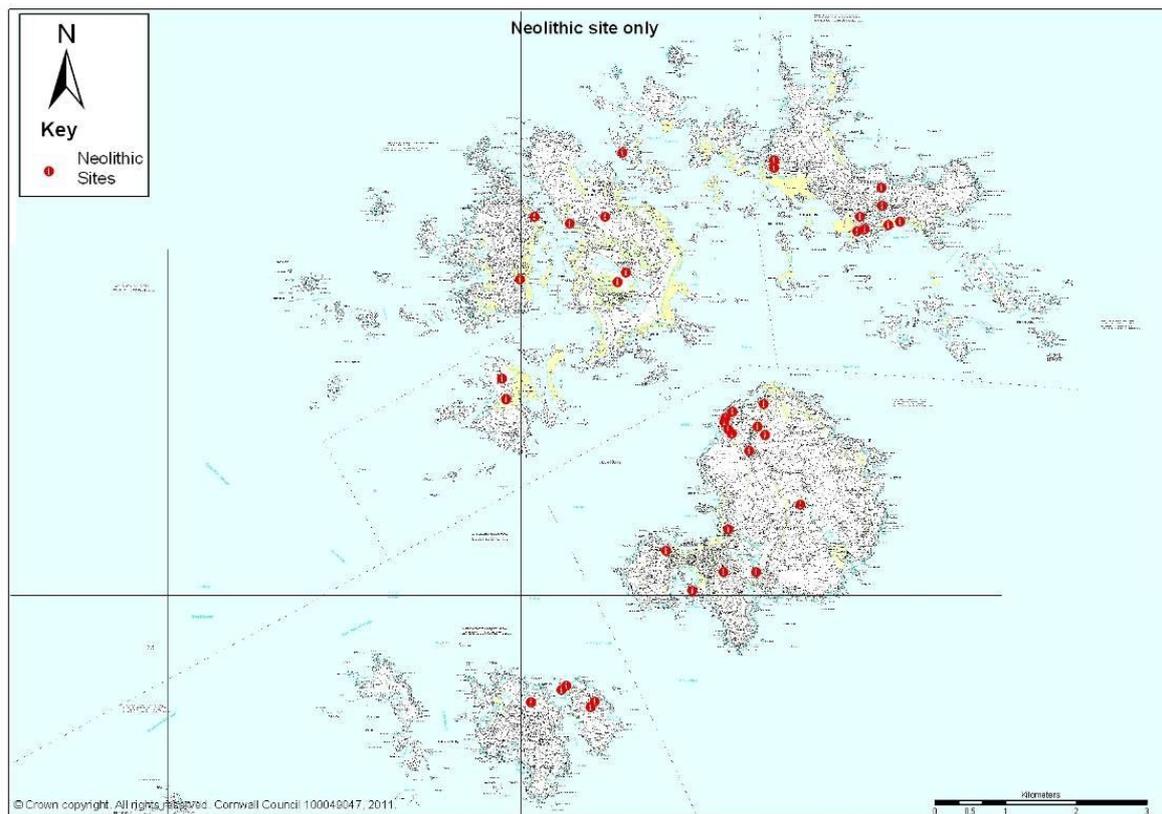


Fig 4.3 Distribution of Neolithic sites recorded in the Cornwall and Scilly HER

The Neolithic and Early Bronze Age environmental background of Scilly was summarised recently for the South West Archaeological Research Framework (Wilkinson and Straker 2008, 72). There are three published palynological studies of Neolithic and Bronze Age environments from the Islands (Ratcliffe and Straker 1996, 32). The longest and best known pollen sequence is from Higher Moors on St Mary's (Scaife 1984), which begins in the Mesolithic at 5725-5378 cal BC (HAR-3695) and indicates oak woodland with an understorey of hazel (Wilkinson and Straker 2008, 72).

The picture of the Neolithic environment is of localised disturbance of woodland, while the main phase of clearance, eventually leading to the present heathland environment, dates from the Late Bronze or Early Iron Age (Dimpleby *et al* 1981; Scaife 1984; Ratcliffe and Straker 1996, 33). The prominence of birch in the Neolithic flora of the Isles of Scilly is notable, especially given that it is a minor component of woodland elsewhere in the South West at this time. Nevertheless, given that most studies have been carried out on St Mary's, it is at present uncertain how widely any of these interpretations can be applied to other islands in the archipelago. Even on St Mary's there are many local variations in the vegetation despite its small area (Wilkinson and Straker 2008, 72).

At some point prior to the Middle Bronze Age, 1608-1056 cal BC (HAR-3694), there was small-scale woodland clearance at Higher Moors; cereal and ruderal pollen suggest this was for cultivation. Later in the Bronze Age the woodland regenerated and birch rose to dominance, although cereal and herbaceous pollen were still present, indicating continued cultivation. Organic deposits associated with a radiocarbon date of 4230-3947 cal BC (GU-5061) were investigated at Par, or Higher Town, Beach, St Martin's, in the early 1990s (Ratcliffe and Straker 1996, 19). These contain pollen spectra indicative of hazel-oak woodland during the Earlier Neolithic. Later (but before 3486-3017 cal BC, GU-5060), birch had colonised and replaced much of the hazel, but unlike

at Higher Moors there is no evidence of forest clearance. Palynological examination of a later coastal peat exposure at Porth Mellon, St Mary's, dating to 3263-2703 cal BC (GU-5394), suggests local woodland dominated by birch, with a lesser component of hazel and oak. After 2866-2204 cal BC (GU-5396) lime appears and oak becomes a more prominent element of the local woodland, but once more there is no evidence of clearance (Ratcliffe and Straker 1996, 25; Wilkinson and Straker 2008, 72).

Analysis from a peat sample taken at Porth Mellon, St Mary's, during the Lyonesse Project in 2010 suggests a slight decline in birch, hazel and oak woodland cover and an increase in open disturbed or pastoral grassland during the Late Neolithic or Early Bronze Age (OSL age of 4750 ±1210 in an interbedded sand layer). The range of herb pollen and the absence of saltmarsh plants suggest drier grassland well above any tidal influence.

4.4 Landscape

4.4.1 The landscape context of monuments

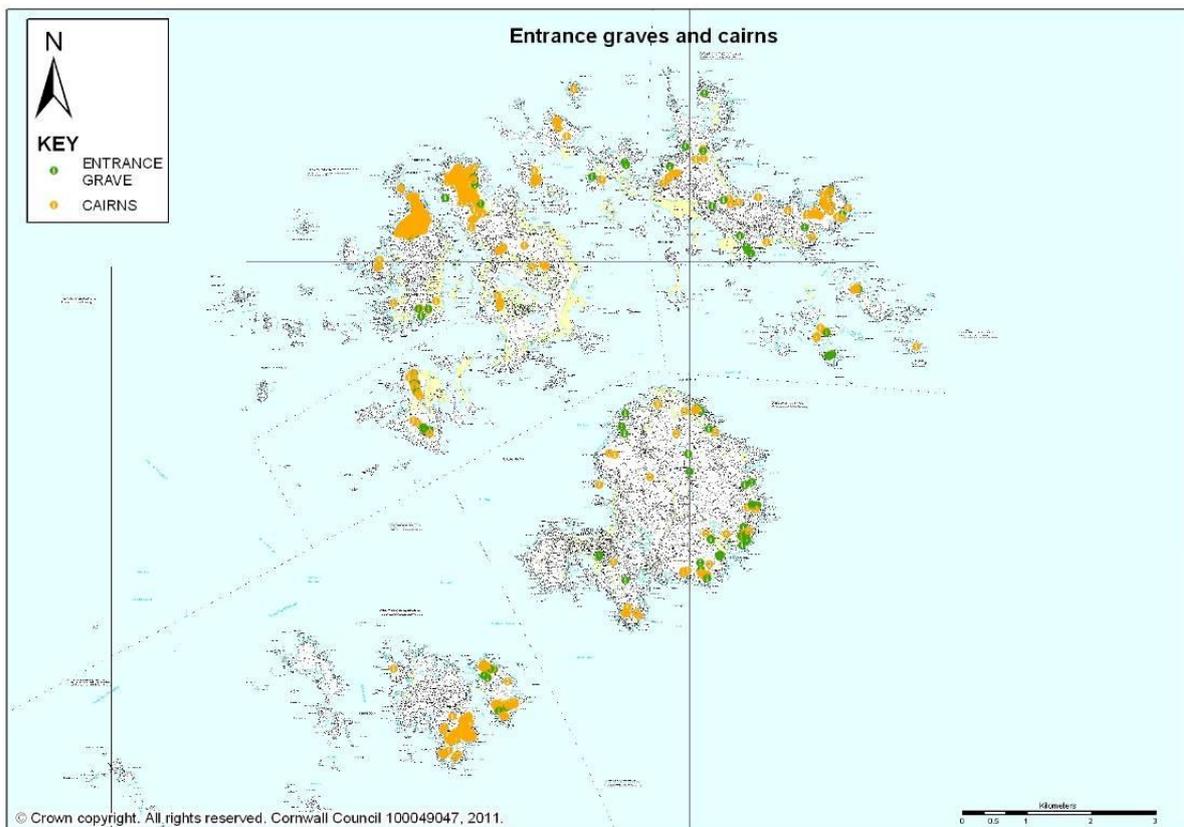


Fig 4.4 Distribution of entrance graves and cairns in Scilly

Entrance graves occur around the current coastline of the archipelago where they are a feature of higher ground (Fig 4.4). They usually occur in clusters, as on Porth Hellick Down, or as linear groupings of monuments, as on North and South Hill, Samson. They are not evenly distributed throughout the archipelago being absent from St Agnes, Ganilly and Annet and with restricted distributions on Bryher and Tresco. Over 40% occur in only three locations: the island of Samson; Porth Hellick Down, St Mary's, and Kittern Hill, Gugh. While it has been argued that proximity to the sea may have been an important aspect in their landscape setting they are absent from areas on the periphery of the archipelago, such as Shipman's Head Down, Wingletang Down and Peninnis Head, which command the most extensive views over the sea. It should be noted that this is their present day distribution and there is evidence for inland sites on

St Mary's being destroyed for agriculture in the late nineteenth and early twentieth centuries (Robinson 2007).

There is an interesting absence in Scilly of earlier megalithic tombs such as portal dolmens which are found in Penwith, Ireland, and France. It is possible that 'propped stones' could have acted as small megalithic tombs although none of these have been dated (see below, section 4.4.2)

The overall distribution of cairns is different to entrance graves, although they are also found predominantly on high ground around the coastline (Fig 4.3). Most significantly, cairns occur in large cairnfields on exposed headlands around the periphery of the archipelago, notably on Wingletang Down, St Agnes, Shipman Head Down, Bryher, Castle Down, Tresco, and Chapel Down, St Martin's. The location of cairns around the periphery of the archipelago is emphasised further by the presence of cairns on small, barren rocky islets such as Menawethel and Round Island.

The majority of standing stones or menhirs are found in the northern part of St Mary's, with one on Gugh and three on St Martin's. Most are on hilltops, ridges or slopes. The site of a destroyed example on St Mary's is at the highest point of the Islands. Two other stones are in very prominent positions and can be seen from some distance. The distribution pattern emphasises the north and east coast of the archipelago, which Robinson (2007, 126) considers may relate to the importance of the easterly approach by seafarers to the Islands.

A possible stone row has been recorded on Par Beach, St Martin's, located midway along the beach between the high and low tide (Fulford *et al* 1997; Ratcliffe 1990, 22, figs 8 and 9) (below, Section 4.7.3). Two more stone alignments were identified on Castle Down/Tregarthen Hill, Tresco, by Dave Hooley during the Monuments Protection Programme (MPP), the status of which is supported by Tom Greeves (pers comm to Charles Johns).

No stone circles have so far been confirmed on Scilly, although Borlase (1756) described a stone circle or 'Druid Temple' on Salakee Down, St Mary's, the site of which has recently been identified and recorded (Seaney 2010a). The stones appear to be natural, most of them being earth-fast boulders defining a platform of bare rock. Despite being natural, they may be significant as they are set in the wider Bronze Age ceremonial landscape of Salakee and Porth Hellick Downs. Two possible submerged stone circles have been reported to the west and south of Samson.

Thomas (1985) suggested there was a considerable period of agricultural land use before the construction of entrance graves and it has been suggested that six entrance graves post-date cultivation lynchets; i.e. terraces formed on sloping ground by the downhill movement of cultivated soil (Coate 1994). Bant's Carn (Fig 4.4) and Upper Innisidgen Cairn on St Mary's appear to sit on earlier lynchets; a lynchet runs up to the east side of Lower Innisidgen entrance grave; the entrance grave on John Batty's Hill, St Martin's, appears to sit on top of a low lynchet; one of the entrance graves on the island of Arthur in the Eastern Isles stands on the lip of a lynchet; and Obadiah's Barrow on Gugh seems to be set into a lynchet, apparently post-dating its establishment (Coate 1994, 35-5, 64-5). An entrance grave at the foot of Halangy Down merges into a lynchet that partly overlies it. The discovery of a Neolithic flint adze or axe below Knackyboy Cairn on St Martin's may also indicate prior cultivation on the site (O'Neil 1952). Most of the Penwith entrance graves are sited within shallow valleys suitable for settlement or close to prehistoric field systems (Jones and Thomas 2010, 289).

The pits at East Porth, Samson, which contained the largest assemblage of Neolithic pottery so far found on Scilly were in a low-lying location that is now a beach but would have been about 1km inland in the Early Neolithic (Neal, forthcoming).



Fig 4.5 Buzza Hill, St Mary's, showing the entrance grave with Hugh Town beyond (photo: Cornwall Council)

4.4.2 The appropriation of natural topographic features

In Devon and Cornwall, tors and distinctive hilltops may have been referenced and embedded within the routines of everyday life, and in cosmological and mythical structures (Bender et al 1997; Tilley 1995; Pollard et al 2008). Enclosures were built around some tors as such as Carn Brea, Helman Tor and probably Stowe's Pound during the earlier Neolithic while other outcrops were the focus for pit groups or artefact deposition in crevices (*cf* Pollard and Healey (eds) 2008, 78).

The topography of Scilly contains landscapes and seascapes which may have been perceived to have held liminal or supernatural properties, in particular, granite tors and fantastical rock formations such as on Penninnis Head, St Mary's, and Wingletang Down, St Agnes; on a wild day the latter feels like the edge of the world, literally. It is difficult to believe that such tors and rocks did not have a comparable significance for the early inhabitants of Scilly as those on the south west mainland did for people there. Robinson (2007, 16-18, 115, 128) has touched briefly on this theme but there is considerable potential for further research and exploration of the phenomenology of natural features on the Islands.

Scourse (1986, 81, fig 31; 1987) defines four tor forms on the Islands: horizontal, vertical, fill slope and erode, each type relating to variations in their geological formation, exposure and erosion. Robinson (2007, 115) has observed that entrance graves are consistently located in close proximity to granite tors and that through this their builders were emphasising the importance of such features in their everyday world. In particular Robinson (*ibid*, 129), considers that the incorporation of earth fast boulders within monuments emphasised the significance of particular elements of the natural world. He also (*ibid*, 115) catalogues instances of artefact deposition in tors: a ceramic vessel at Yellow Rock Carn (Lewis 1948, 7); a Late Neolithic/Early Bronze Age dolerite adze and pottery at English Island Carn, St Martin's (Ransom 1984, 194); a bronze dagger and comb-impressed urn at Cruther's Neck, St Martin's; and a stone

macehead found below a rock prominence at Block House, Tresco (Ashbee 1974; Hencken 1932; Lewis 1948; Ratcliffe 1989).

A type of site recently recognised in Cornwall is the 'pseudo quoit' or 'propped stone', found on Bodmin Moor at sites such as Leskernick and Tregarrick by Peter Herring, and in Penwith, for example, on Carn Galva (Blackman 2011). None of the Cornish examples are currently dated, although Early Bronze Age pits have recently been recorded beside a stone-setting near Sennen (Jones *et al*, forthcoming). Further examples have been recognised on Dartmoor and in the Channel Islands. Similar constructions ('earth-fast' monuments), of probable Early Neolithic date, are known from south-west Wales (Cummins and Whittle 2009, 165). There are a number of these sites on Scilly, although no systematic record has been made and they are not recorded in the HER (Fig 4.6).



Fig 4.6 Possible propped stone on Gugh (photo: Richard O'Neill)

4.4.3 Settlement

No Neolithic settlements have been identified to date, although submergence will have destroyed any low-lying or coastal sites; as most surviving prehistoric houses are unexcavated it is possible that some may overlie earlier structures. On current artefactual evidence the earliest indications of occupation appear to be at Old Quay, St Martin's, followed by East Porth, Samson, Porth Killier, St Agnes and Bonfire Carn, Bryher (below, section 4.5.2.3). The identification of early settlement has only come to light through the careful excavation of later settlements demonstrating the potential importance of certain locales within the island landscape throughout considerable periods of prehistory. The absence of identified permanent houses on the islands during this period may suggest a degree of residential mobility. It is possible that, as on the mainland, flint scatters and pits are more typical signatures of Neolithic settlement activity than structures.

Little is known about Early Bronze Age settlement sites on Scilly and sites which have demonstrated evidence for Early Bronze Age occupation also show evidence for later activity. A number of early features located beneath later settlements may be related to the Early Bronze Age. At Little Bay, St Martin's, a stone-lined pit was located below the floor of a Middle Bronze Age house. The walls of this house partially overlay this pit and a hearth had been constructed directly above it (Neal 1983, 52). A radiocarbon date from the hearth provided a date of 2125-1533 cal BC (HAR-4324; 3490 ±100 BP) suggesting that the pit was an early feature of this site. A similar stone-lined pit was found beneath a prehistoric house at Perpitch, St Martin's (O'Neil nd g), although in this instance there is no independent evidence for its date.

Rectangular stone-lined box hearths are the earliest features of settlements such as English Island Carn, St Martin's, and Nornour. At English Island Carn a sanded area and hearth was found beneath the floor of a later house where it was sealed by a thick layer of ash and soil containing substantial quantities of comb-impressed and cord-impressed pottery (O'Neil nd h; nd k). At Nornour the earliest features of the settlement comprised three stone-lined hearths and an arc of postholes (Butcher 1978). The dating of many of these early features remains unclear, but they might relate to the late third or early second millennium cal BC.

4.5 The material world

4.5.1 Material culture

Neolithic and Early Bronze Age culture is represented in Scilly by assemblages and individual finds of bronze, ceramics, and lithics; organic components of the material culture such as wood or leather have not survived.

The impressions of cord in various forms and of 'matting' on the bases of Early Bronze Age pottery have great potential to inform us about various aspects of cordage, mats, basketry and sewn items; preliminary work suggests that impressions on Scillonian ceramics differ in subtle ways from those on the mainland, thus confirming the impression of a developing sense of identity among Island communities (Owoc *et al* 2003; Manske *et al* nd; M Owoc, pers comm to H Quinnell).

Imported objects or artefacts include a group of nine glass beads and a star-shaped faience bead from Knackyboy Cairn (O'Neil 1952) and occasional non-local stones, such as the pumice found in an entrance grave at Porth Hellick (Hencken 1932, 20) and in a pit containing Neolithic pottery at East Porth, Samson (O'Neal, forthcoming). The latter may have been casual beach finds retained for their exotic quality.

4.5.2 Material extraction and artefact production

Metalwork

A few items of Early Bronze Age metalwork have been found on Scilly: a dagger from a burial at the Carrion Rocks, St Martin's (Ashbee 1974, 325), a copper alloy awl from Obadiah's Barrow (Hencken 1932, 28, fig 12) and the possible terminal of a bronze armlet and clip from a bronze earring from Knackyboy Carn (O'Neil 1952, 30; Ashbee 1974, 241).

Faience and glass

Nine glass beads and a star-shaped faience bead were recovered from Knackyboy Cairn (O'Neil 1952; Ashbee 1974, 115).

Ceramics

Neolithic

Early Neolithic ceramics probably belong to the South Western or Hembury style, represented by a few small assemblages and some single finds. However, the range of forms present is limited at present to plain bowls, with a possible carinated example

from Porth Killier, St Agnes (Quinnell, in prep a); the few lugs known are imperforate. The more distinctive features of the south western style, such as trumpet lugs and broad shallow bowls, have not yet been found. Fabrics appear to be distinctive amongst the granite derived material on Scilly, the matrix well mixed without large inclusions but with distinctive chunks of granite minerals added. The fabric of the assemblage from East Porth, Samson, is slightly different. Its matrix, although granitic, is smoother and finer and its added inclusions are predominantly vein quartz (Quinnell, in prep b). It is presumed that these granite fabrics were made on Scilly but probably used clay deposited by larger streams than survive today. A sherd of Lizard gabbroic clay, similar to that of fine wares from Carn Brea on the mainland, comes from the cliff face site at Old Quay, St Martin's (Quinnell 1994), and, if confirmed petrographically, represents the only currently known ceramic import to the Islands in the Neolithic. Robinson's (2007, 140) suggestion that most Scillonian Neolithic pottery used mixed gabbroic and granitic material is not supported by Henrietta Quinnell's observations.

One assemblage, East Porth, Samson (Quinnell, in prep b), comes from a pit, while that from Old Quay, St Martin's (Quinnell 1994), came from unspecified contexts in the vicinity of a pit; the context of a third, at Bonfire Carn, Bryher, is uncertain (Quinnell 1994). The relationship of the possible carinated bowl sherds from Porth Killier to a cist needs further consideration (Quinnell, in prep a). Sherds or small scattered groups were recorded at five locations during the 1985 Electrification Project (Quinnell 1994). Robinson (2007, 65) reports Early Neolithic sherds from a midden on Annet but Henrietta Quinnell is dubious about this ascription. No Neolithic ceramics can now be attributed to entrance graves. The material suggested as Neolithic by Hencken from Bant's Carn (1932, 24) and North Hill on Samson (1933, 27), an identification frequently quoted, is not of this date. Hencken (1933, 14) never saw the sherd from Bant's Carn and that from North Hill should, in the light of modern knowledge, belong to the Bronze Age. Recently Katharine Sawyer has traced George Bonsor's drawing of a possible Early Neolithic bowl from Bant's Carn (Hencken 1932, fig 10 B) and this is clearly marked 'Halangy Porth' (Bonsor 1899-1900): there are first millennium cal BC finds from Halangy Porth and this vessel may be of this date (see below).

No Middle Neolithic Peterborough pottery or Late Neolithic Grooved Ware are yet known from the Islands. Peterborough ceramics are virtually unknown in Cornwall although Grooved Ware groups are now being found, with some eight sites known (Jones and Quinnell 2011).

The suggestion by Robinson (2007, 54) that the lowest deposit of vessels at Knackyboy Cairn, St Martin's, with horizontal rows of comb or cord impressions above the girth, represents a local Late Neolithic Scillonian style lacks supporting evidence.

No Neolithic material from Scilly has yet appeared in a published pottery report.

Beaker Phase

No Beaker pottery has definitely been identified although a possible sherd with comb stamping and cord impressions comes from Bonfire Carn, Bryher (Quinnell 1994). The sherd from Halangy Porth interpreted by Ashbee (1983, fig 9, No 3, 25) as Beaker-related is better regarded, in the light of subsequent work, as Later Iron Age (Quinnell 1994).

Early Bronze Age

For the Earlier Bronze Age there are only four or five possible examples of mainland vessel types recorded. A Collared Urn, possibly from Normandy Down, was petrographically examined by Parker Pearson (1990, 14, no 180) and contained greenstone, which suggested that this vessel had been imported from the mainland: Henrietta Quinnell's discussions with Katharine Sawyer and Gary Robinson suggest that the provenance is uncertain. Sherds from Porth Hellick Down 'Great Tomb' with impressed cord chevron decoration are illustrated by Hencken (1932, fig 9) and photographs provided by Katharine Sawyer have been examined by Henrietta Quinnell:

the fabric appears to be granitic, so of either Cornish or Scillonian manufacture. These appear to belong to the Cornish Trevisker sequence and to be the only examples of this ceramic type so far noted on the Islands. Trevisker cord impressed ceramics were produced through much of the second millennium cal BC (Jones and Quinnell 2011). A single sherd, apparently in granitic fabric, with plaited cord chevron impressions, was found on the beach adjacent to Building 1 at Nornour (Butcher 1968, 71, fig 34 no 134); this also appears to be Trevisker. P8 from Porth Killier, found away from the main Bronze Age settlement, had a zone of fingernail and twisted cord impressions very much in the Trevisker fashion (Quinnell, in prep a). The illustration of a vessel from Halangy Porth described as 'reconstructed' (Ashbee 1972, fig 14, no 14a) has twisted cord impressed decoration and simple lugs and could also have Trevisker affinities.

The most common prehistoric ceramic in Scilly is a style unique to the Islands, best described as 'Scillonian Bronze Age'. This is found both in burial-related contexts such as entrance graves and cairns and in domestic contexts such as hut circles and middens. The vessels are generally biconical, sometimes bucket-shaped, sometimes plain, but often decorated with comb or cord impressions or incisions above their girth; lugs of various shapes are frequent. These features are all found in the mainland Trevisker ware of the Early and Middle Bronze Ages. However, Scillonian Bronze ceramics differ from Trevisker in four principal ways: decoration is almost always arranged in horizontal lines; more complex geometric patterns are absent; biconical vessels tend to be more curved; and lugs are more frequent, as are undecorated vessels. A further feature is the presence on some vessel bases of impressions apparently formed by mats. All data currently available indicate that the ceramics are of granitic fabrics likely to have been made on the Islands. Ashbee (1976, 17) provides a clear description of various granitic fabrics from Bant's Carn in which mineral components derived from the granite appeared to have been added, in differing quantities, to water-sorted granitic derived clay. There has been no comprehensive study of types and the relationship of these to varying decorative traits or lack of them.

The majority of excavations of burial-related sites yielding Scillonian Bronze Age ceramics have never been published, notably those carried out by George Bonsor around a century ago, and some records survive imperfectly. Bonsor's finds, reported to have been deposited in the British Museum, could not be found until recently (Robinson 2007, Appendix U; Katharine Sawyer, pers comm to Henrietta Quinnell) and so have not been available to inform subsequent work. The most important publication of a ceramic assemblage from an entrance grave is that by Ashbee (1976) from Bant's Carn, which covers both his own excavations and Bonsor's earlier work. The Appendix to Ashbee's report provides a useful list of finds from investigated entrance graves with details of publications where these have taken place. Ashbee makes it clear that ceramics in entrance graves, while sometimes found in quantity, were frequently deposited as sherds. The illustrations of the Bant's Carn assemblage show a range of rather similar biconical vessels with curved walls and lugs, some plain, some with a variety of decoration, reconstructed from very small pieces. The overall shape of the vessels appears to have been influenced by the illustrations in O'Neil's (1952) interim report on Knackyboy Cairn. The only other report to reasonably modern standards is that by Grimes (1960, 170-180) on the entrance grave at Salakee Down, St Mary's. This yielded two vessels found in fragments, both plain with lugs.

The only cairn with useful ceramic data is that at Porth Killier (Quinnell in prep a), with a small group of undecorated but lugged biconical vessels from a cist. Dates from the Porth Killier cairn await publication. There are problems with the data from this site (Jeanette Ratcliffe, pers comm to Henrietta Quinnell), although this is probably due to disturbance of the stratigraphy by burrowing rats (Andrew Young, pers comm to Charles Johns).

Datable associated objects are restricted to the group of Early Bronze Age faience and glass beads from Knackyboy Cairn. Consequently an initial date for these ceramics can not be established. O'Neil's interim report (1952) of Knackyboy provides a strong

indication of a stratigraphic sequence: curved walled vessels with cord or comb impressions were first deposited and then overlain by cremated deposits which included the faience beads. The deposits above appear to have contained vessels with incised decoration, with plain vessels more towards the top. Robinson (2007, 56), has published an interpretation of this sequence in which he places the lowest level, and the cord impressed vessels, at a date preceding the Early Bronze Age beads, in the Late Neolithic. From this he moves to situate most initial entrance grave deposits in the third millennium cal BC (*ibid*, 60).

The first radiocarbon determinations from an entrance grave have just been obtained (Mulville and Sawyer forthcoming): the sequence of ten dates from cremated bone from Knackyboy Cairn on St Martin's all fall within the period 1742 to 1266 cal BC (2σ), while a date of 1893-1742 cal BC has been obtained from cremated bone in a cist from Old Town, St Mary's (*ibid*) and Robinson's interpretation must be regarded as speculation until Knackyboy Cairn is published. Katharine Sawyer's current work towards a University of Exeter Doctoral thesis on entrance graves is expected to clarify much of the ceramic and artefactual data.

An Early to Middle Bronze Age date for the principal use of entrance graves is supported by comparison with data from the Cornish mainland. If the analogy between Scillonian Bronze Age ceramics and Trevisker ware is valid, then the former belongs broadly within the second millennium cal BC. Trevisker cord decorated ceramics appear to have been selected – as opposed to those with incised decoration – for Early Bronze Age burial deposition (Quinnell, in prep c). This fits well with the apparent primacy of cord impressed vessels at Knackyboy Cairn and their frequency at Bant's Carn. The recent publication of Bosiliack entrance grave in West Penwith has produced radiocarbon dates centred on the seventeenth and sixteenth centuries cal BC for that site (Jones and Thomas 2010, 275). Jones and Thomas also re-emphasise the close relationship between Trevisker ceramics and entrance graves at Ballowal and Tregaseal (*ibid*, 282), and redraw attention to an Early Bronze Age radiocarbon determination at Tregiffian (*ibid*, 284). In Cornwall large and complex structures associated with burial appear to belong to the Early Bronze Age, with small monuments in unobtrusive positions continuing the position into the Middle Bronze Age (Jones and Quinnell 2011). This background would be compatible with some continued use, or building, of smaller monuments in Scilly in the Middle Bronze Age.

Two settlement sites with stone houses dating to the Middle Bronze Age have produced radiocarbon dates suggesting some form of domestic activity in the preceding Early Bronze Age. That at Little Bay, St Martin's (Neal 1983, 52), was associated with comb stamped sherds. The Nornour data (Butcher 1978) shows a range of plain vessels with occasional comb or cord impressed and incised sherds, most clearly accessible in Robinson's representation (2007, 192-5). The Nornour data may include early phases of stone buildings. East Porth, Samson, has also produced an Early Bronze Age date from a hearth with a small ceramic assemblage; it was adjacent to a structure in the cliff not fully investigated (Quinnell 1994). It is possible (below) that much of the material from Halangy Porth belongs to the Early Bronze Age.

Flint and stone

Flint artefacts in Scilly are usually isolated finds, but at a number of locations worked flint has been found in sufficient quantities to constitute a flint scatter; the majority date to the Neolithic or Bronze Age and represent prehistoric flint working sites. Flint scatters have yielded a variety of implements such as scrapers, awls, knives, and arrowheads. The Cornwall and Scilly HER records ten flint scatters on St Mary's, Tresco, and St Martin's. Notable Neolithic items include the axe or adze from below the main cairn material at Knackyboy Cairn (O'Neil 1952) and a recent find of an axe or adze from the west shoreline of Bryher (Fig 4.6).



Fig 4.7 Neolithic axe or adze found on the west shoreline of Bryher c 2010 (photo: Carl Thorpe)

Amelia Pannett's assessment of the lithics collection held by the Isles of Scilly Museum is discussed above in Section 3.3.3. A number of plano-convex knives were identified, all manufactured on large flakes, with invasive pressure flaking along one edge of the dorsal surface and rounding at the distal end. These are characteristic of the Early Bronze Age. Several arrowheads were examined, including barbed and tanged, oblique, chisel and triangular forms. All date to the later Neolithic and Early Bronze Age. Two possible leaf-shaped arrowheads were also recognised, but both were very rough and could actually be poorly manufactured triangular forms (Pannett 2007).

A large number of flakes and blades had abrupt retouch along one or both lateral edges, and several showed tentative evidence for use in the form of edge damage. A number of notched flakes and blades were also recognised. Abrupt retouch had been utilised in the manufacture of awls and borers, a range of which was represented in the collections. In a small number of examples, a double tool form was recognised, with a scraper edge on one end, and the opposite end retouched to form a borer. These tool forms are, again, not particularly diagnostic of a period, and could date from the late Mesolithic to the Early Bronze Age (Pannett 2007).

Despite the unprovenanced character of the examined material in the lithic archive, it provides important details about the nature and potential of the resource on Scilly. Evidence for the later Neolithic and Early Bronze Age is abundant, as expected, but there is little or no evidence for the early Neolithic. It is possible that such evidence is present, but currently invisible within the collections due to a lack of clearly diagnostic pieces (such as leaf-shaped arrowheads) and full working assemblages (Pannett 2007). It has been noted that artefacts reflecting 'early post-Mesolithic flintworking traditions' have been recovered from the area towards Kallimay Point, St Agnes (Quinnell 1994, 9).

Katharine Swayer has identified five pumice objects from Scilly. A fragment of pumice was found in one of the pits containing Neolithic pottery at East Porth, Samson (Neal

forthcoming a), by Bonsor at Porth Hellick entrance grave (Hencken 1932), two pieces from the western section at Nornour (Buthxcher 1978), Little Bay settlement (Neal 1983) and a surface find made by Alec Gray near Bant's Carn (Gray 1972).

4.5.3 Art

The only recorded non-ceramic art of this period in Scilly is the large stone incorporated within a house at Halangy Down, St Mary's, the surface of which is decorated with a pecked-out geometric design that Ashbee suggests represents a stylised face (Ashbee 1966, fig 2; 1974, 153).

During recent fieldwork associated with the English Heritage-funded Lyonesse project previously unreported rock art has emerged, an image pecked into a native granite boulder lying on the East Porth foreshore, Samson. The 'cigar' or 'boat-shaped' image, approximately 300mm by 100mm and aligned north-south, lies on the flat surface of a very large beach boulder and incorporates a natural fissure as a central division (Fig 4.8). Photographs of the image have been shown to various rock art specialists but as yet no parallels have been identified. Invoking the image as an early representation of one of the boats used to access the islands is very tempting, but in the absence of dating evidence this cannot be confirmed and the 'boat' could just as easily be referencing the post-medieval tradition of pilotage or is not a boat at all.

4.5.4 Subsistence

Animals

A domesticated, neo-natal calf's tooth from Par Beach, St Martin's, apparently associated with late Mesolithic peat deposits, has been radiocarbon dated to the Early Bronze Age, 2270–2030 cal BC (OxA-X-2465-6; 3740 ±30), which makes it the earliest recorded osteological faunal remain from Scilly and also the earliest indicator of animal husbandry on the Islands (Ratcliffe and Straker 1996, 29; Marshall and Bronk Ramsey 2012). Otherwise the earliest recorded faunal remains date to the Middle Bronze Age.

Ceramic and stone vessels were probably used for the storage of cereals and other foodstuffs and there is the potential that residue analysis of the Early Neolithic ceramic assemblages will reveal information about vessels contents (for example, ruminant, porcine, dairy and marine fats) and provide indirect evidence for early foods, and it is planned to carry out such analysis of the Neolithic pottery from East Porth, as part of the current 'Changing Patterns of Marine Product Exploitation in Human Prehistory via Biomarker Proxies in Archaeological Pottery' project led by Richard Evershed of Bristol University and Jacqui Mulville of Cardiff University.

Plants

The earliest Bronze Age assemblage, recovered during the 1989-93 Coastal Erosion Project, was a cache of barley from East Porth, Samson, dating to 2198-1772 cal BC (OxA-3649, 3620 ±70). This almost entirely comprised a cleaned crop of naked, probably six-row barley, providing good evidence that it had become crop in its own right by the Early Bronze Age. Hulled barley grain constituted less than 1% of the total assemblage. There was no chaff and only a single charred spike rush, emphasising that this was cleaned harvest which may have been burnt accidentally prior to consumption (Ratcliffe and Straker 1996, 10).

4.5.5 Transport

'The Isles of Scilly stand as an important reminder as to the seafaring abilities of Neolithic and Early Bronze Age people within this region'

(Ransley *et al* 2011)

Exactly when Scilly was first permanently settled is a matter yet to be precisely determined, but what is certain is that the first visitors and settlers came by boat. No Neolithic seagoing boats have been found in Scilly, or anywhere else in Britain, but it is

important to keep sight of the effects sea level rise have had on Neolithic and Bronze Age coastlines; most prehistoric boats have been found in estuarine and inland contexts.

Island communities are important when considering maritime transport as seafaring is implicit in trading and migration. Any artefacts originating outside the islands, such as the sherd of gabbroic pottery from Old Quay, St Martin's, attest to the use of boats to carry goods and people across the sea.

Clark (2004b, 7) suggests that the archaeology of south-east England and nearest France indicate that there may have been a tribal connection which straddled the English Channel during the Bronze Age. He notes that the journey from Dover to the nearest contemporary site in France is 55km, although the coastal voyages attested by the shale in the Dover Boat and a nearby find of a Trevisker-type urn from Cornwall indicate distances travelled of 220 and 450km respectively in the Middle Bronze Age. By the end of the Bronze Age a maritime community may have been established utilising the connecting waters of the English Channel / La Manche and possibly stretching along the south coast of Britain as far as the south-west peninsula and Scilly. Materials and artefacts in bronze, amber and gold formed elements of contemporary material culture and indicate that these connections stretched north to Scandinavia and south to the Alps. In this connection it is interesting to note Stuart Needham's concept of a 'maritory' in the Early Bronze Age, linking south-west England with mainland Europe, as indicated by the Rillaton cup and similar contemporary items (Needham 2009), although there is very little evidence for the circulation of south west tin or copper before the middle of the Bronze Age (the tin slag recovered from an Early Bronze Age ring cairn at Caerloggas on the St Austell granite being one of the notable exceptions (Miles 1975).

Gabriel Cooney (2004) envisages hide-covered keeled *currachs*, a type known historically in Ireland, plying the western seaways from the Neolithic onwards. Plank-built craft have been considered less likely in the western seaways due to a supposed lack of suitable timber on these exposed and damp coasts, but it can equally be questioned, particularly for Ireland, as to where the large mammals were found to provide hides for *currachs* in the earliest periods. Both hides and wood can be imported (by people with the appropriate seacraft), as can complete vessels, and the presence of both hide and plank traditions in the western seaways should not at this stage be discounted. Indeed, two Bronze Age find-sites of plank boats are known from Caldicot and Goldcliff at the head of the Bristol Channel on the Welsh side of the Severn Estuary (Nayling and Caseldine 1997). Plank boats are regarded as more stable and robust craft compared with hide boats and the sewn-plank design may be an innovation based on the earlier sewing of hides (Van de Noort 2004). Roger Mercer (2003) has pointed out, however, that an advantage of hide boats is that they are lighter and more easily carried or hauled across the isthmus of a peninsula to avoid the potential dangers of rounding headlands by sea. Such a scenario would perhaps allow the avoidance of Scilly, and the strait between the islands and Cape Cornwall, by taking boats over the 8km of isthmus between Mount's Bay and St Ives Bay.

Scilly lies some 45km from Cornwall, 190km from France and 240km from Ireland. The Islands are visible from Land's End on a clear day and given the lack of any known navigational instruments in this period, sight of the destination from point of departure was probably important. The difficulties of such journeys undertaken in prehistory are often the subject of speculation: '*The undertaking was formidable, but it was never insuperable*' (Thomas 1985).

To put the journey into some sort of perspective it is worth considering a recent crossing to Scilly from Cornwall in small kayaks. On 2 May 2009 seven individuals travelled from Lamorna Cove in Cornwall to St Mary's in small fibreglass kayaks propelled with double-ended paddles. The wind was light (Force 2) but a considerable Atlantic swell was running (5-6m claimed). The journey took 10 hours and was completed by six of the seven canoeists. One interesting observation made by the

participants was that as Scilly is so low-lying, the islands were not visible from the kayaks until very close at hand. Although this journey was made with the benefit of modern navigation (GPS), lightweight fibreglass kayaks and an accompanying safety boat, it illustrates that the journey can be made using very small boats and paddles when conditions are relatively benign (The Big 5 Kayak Challenge 2011). Rainbird (2007) discusses how animals could be used to help navigate and subtle changes in wave patterns also indicate land before it came into view; Pacific navigators in canoes were able to steer between low atolls without intervisibility using these techniques

4.6 Social relations

Thomas (1985, 103-9) created a model for early settlement in Scilly, identifying five 'founder' settlement sites each with an associated entrance grave. All the sites were in original inland locations which were sheltered, favourable spots, and three had produced early finds. He proposed that some 50 or 60 people were the founder settlers of Scilly and that subsequent settlement and ritual monuments developed from these original sites: below Knackyboy Cairn on St Martin's; Gimble Porth, Tresco; East Porth, Samson; Halangy Porth, St Mary's, and a site below Kittern Hill, Gugh. He envisaged the initial settlement of Scilly as being dispersed rather than nucleated, with the development of a segmentary society expressing its territoriality through similarly dispersed monuments with no sign of hierarchy, although the varying size of different entrance graves could be seen as reflecting a difference in social status or perhaps in function.

Robinson (2007, 145-6) suggests that Early Bronze Age islanders did not fix their settlements within specific locales and that settlement of this period appears fluid and transient, perhaps moving to different locations within the archipelago dependant upon season and availability of resources. This would suggest a degree of residential mobility with relatively little rigid differentiation of settlement space. By this scenario, a distinct class of settlement site would not have existed in this period and those activities defined as domestic took place in different island landscape settings, as yet largely unrecognised.

The abundance of monuments during this period suggests that by the Early Bronze Age the archipelago contained a resident population. In contrast to settlements, monuments of this period are substantial permanent structures that emphasise and fix specific island locales.

4.7 Monumentality, ritual and burial

4.7.1 Entrance graves

Scillonian entrance graves are small chambered cairns, comprising a roughly circular mound of stone and earth, revetted by a kerb and containing a chamber. The Cornwall and Scilly HER records 92 entrance graves, four of which are destroyed and 11 of which are only alleged (Fig 4.3). Whilst higher concentrations of entrance graves are found on Scilly, similar monuments are found on the Cornish mainland – around 13 entrance graves have been recorded in West Penwith (Barnatt 1982; Jones and Thomas 2011; Ratcliffe 1989).

O'Neil and Hencken's classification of entrance graves draws attention to the standardisation of monument plans and the presence of an open chamber, and therefore the ability to re-enter and reuse the monument after its construction (Hencken 1932, 1933). Although some standardisation exists, the excavated evidence demonstrates a greater variety of monument forms than is implied through the application of a single classification. In practice, the nature of the standing field evidence makes it difficult to always make clear distinctions between open chambers and cairns containing sealed chambers or cists.

As discussed above, the dating of Scillonian entrance graves has been problematic in the past but the new radiocarbon determinations from Knackyboy Cairn indicate that

their principal use was in the Early and Middle Bronze Age (Mulville and Sawyer, forthcoming). Comparison has been drawn between the Scillonian entrance graves and similar monuments located within the Tramore region of County Waterford, Ireland (Piggott 1954; Powell 1941), as well as with Irish wedge tombs which are dated to the Early Bronze Age (Jones and Thomas 2010). Typological parallels could also be made with a group of small passage graves which run up both sides of the Irish Sea and have an arguably early date (Lynch 1975; Powell *et al* 1969).

Monument construction

The size of Scillonian entrance graves varies considerably, with examples ranging from 5.2m to 22.7m in diameter. The mounds of stone and rubble that comprise entrance graves do not appear to have any discernible structure, although as there have been only a small number of recorded excavations this observation may be misleading. Kerbstones may comprise orthostats or stones laid as coursed walling. Chambers are constructed of a mixture of orthostatic and coursed walling, held in place by 'trig' stones along their bases. Surmounting these walls, large capstones are placed across the chamber and levelled into place with smaller stones to form a roof. The shape of chambers is remarkably consistent, being widest at their centres and narrowing towards their entrances and terminals. Evidence from four monuments suggests that some chamber walls were plastered with clay: Buzza Hill, Innisidgen Carn and Lower Innisidgen, St Mary's, and Knackyboy Cairn, St Martin's (Ashbee 1974; Borlase 1753; 1756; Hencken 1932; 1933; O'Neil 1952). The orange plaster used within the chambers derives from clayey deposits found within the *ram* which set hard when exposed. Chamber entrances are frequently restricted, in some instances, as at Porth Hellick Down (Ashbee 1974, 80), by blocking stones. A number of entrance graves stand out from the majority in both scale and complexity. For example, at Porth Hellick and Bant's Carn, St Mary's, and Obadiah's Barrow, Gugh, entrance to the monument's chamber is gained via a seemingly open passage where first an extension collar or platform has been constructed (Ashbee 1974, 79).

A recurrent feature of entrance graves is the incorporation of earth-fast boulders in their construction. In a few instances, the grounders incorporated are substantial and would have been clearly visible within the monument after construction. This feature of monument construction is, however, not limited to entrance graves but is equally apparent within cairns (see discussion below). On Porth Hellick Down an entrance grave, known as Peter's Barrow, contains a large natural grounder that forms a large percentage of the monument whilst a second entrance grave contains a large weathered grounder which forms the back and one of the sides of its chamber (Ashbee 1974, 83; Robinson 2007, 130). Similarly at Knackyboy Cairn, the back and part of the northern side of the chamber is formed by large grounder (O'Neil 1952, pl XV) whilst on South Hill, Samson, the lower part of the chamber of an entrance grave is formed by a grounder around which the monument was constructed (Ashbee 1974, 84).

Funerary practices and deposition within entrance graves

Entrance graves are associated with a range of practices. At Obadiah's Barrow, Gugh, unburned discarticulate bones were found in a layer of hard blackish soil on the stone paving that formed the floor of the later chamber over which were inverted pots containing creamed human remains (Hencken 1932, 28; Hencken 1933, 21; Ashbee 1974, 108-9). At Knackyboy Cairn, St Martin's, and North Hill, Samson (O'Neil 1952; Hencken 1933, 22), the excavation of chambers revealed deposits of dark soil (containing small abraded pieces of pottery) below stone paving, but, in contrast to Obadiah's Barrow, no evidence for inhumation burials was found in either chamber. This may be due to poor preservation of human bone (due to the acid soils), inadequate and limited excavation and disturbance due to later reuse of their chambers.

Later burials placed within the chambers of entrance graves were usually within urns and occasionally accompanied by grave goods such as beads, bone artefacts,

metalwork and selected pebbles and stones. Chambers appear to have received a series of burials throughout their use, although in the majority of cases it is not possible to reconstruct a sequence of deposition. It is also unclear why some entrance graves such as Knackyboy Cairn or Obadiah's Barrow should contain large quantities of burials whilst others contain only a few or none at all. Whilst this discrepancy may be partly due to the small number of monuments excavated and perhaps to later disturbances (at least one of the Penwith entrance graves was used as a piggery) this alone cannot explain this phenomenon and it is likely that social factors played a significant role, such as circulation of bones or perhaps the spreading of ancestral occupation material onto the fields.

Whilst containment of the dead was certainly one function of these monuments, the most common recorded contents of these monuments are deposits of dark greasy soil. Ashbee (1982a) and Thomas (1985, 138) describe these deposits as containing soil, small sherds of pottery, charcoal, ash (not associated with cremations) and pebbles, and have interpreted them as representing the deliberate deposition of occupation debris. Some of this material – such as non-local stone like the pumice found at Porth Hellick (Hencken 1932, 20) – could be interpreted as 'grave goods' or ritual deposits, whilst others, such as topsoil and ash, are not so easily explained. The consistent deposition of this material within the chambers of entrance graves suggests that such deposits were intentional and significant. An alternative interpretation of these deposits is that they are the scraped up remains of funeral pyres. However, whilst funerary pyres would have existed on the islands, evidence for their identification is sketchy (Ashbee 1974, 116-117; Cornish 1874). Once the visible remains of cremations, such as human bone, were collected from the pyre and deposited within urns, the remaining material might comprise a dark oily deposit of ash and soil. The description of the contents of entrance graves as 'dark and greasy' or as 'strong unctuous earth that smelt cadaverous' (Borlase 1754, 54) might fit well with this interpretation, but also with the deposition of midden material (discussed below).

Interpretation of the origin and function of entrance graves

Since the mid-eighteenth century antiquarians and archaeologists have conjectured upon the function of the Scillonian entrance graves. Borlase was the first to classify these 'ancient Sepulchres' into 'Caves' (exposed chambers without cairn and surrounding kerb) and 'Barrows' (entrance graves with cairn and surrounding kerb) (Borlase 1756, 14). The number of these monuments in Scilly led Hencken (1932, 38) to suggest that these Islands may have been regarded as one of the special abodes of the departed in ancient times. The term 'entrance grave' has only been used to describe this type of monument since the 1940s; before that they were referred to as barrows, covered galleries or passage graves (Jones and Thomas 2010, 283). Ashbee (1981) has argued for a Mesolithic origin but they are now generally considered to date from the Early Bronze Age onwards as they do in Cornwall (K Sawyer, pers comm; Jones and Thomas 2010). Whatever their origins, antiquarians and early archaeologists saw entrance graves as tombs, whether for single, collective or successive burials, but in the last 40 years or so alternative interpretations have been offered (*cf* Coate 1994, 18-9).

As a result of his investigations into the relation between entrance graves and field systems, the use of occupational debris and the lack of burials in some examples, Ashbee (1976, 21) suggested that, other than being mausolea, their function might have been as cult monuments to counteract soil impoverishment and loss of fertility. It has been suggested that deposits such as ash and topsoil were derived from settlements and could represent a transfer of material from the world of the living to the ancestors (Thomas 1985, 142; Robinson 2007, 21).



Fig 4.8 The 'Giant's Grave', Porth Hellick, St Mary's (photo: Cornwall Council)

Thomas (1985, 108, 126) viewed the prehistory of the Islands as that of a segmentary society expanding into estimated territories (above, section 4.6). He suggests that even if the monuments housed burials they were not originally constructed as tombs but as territorial markers, an outward and visible expression of ownership of defined territories by defined groups.

Because entrance graves are mainly situated on the periphery of the Islands and many are not connected with field systems, Ashbee (1986, 199) suggested that they might also have a maritime connection, being intended to ensure continuing fertility of the sea. It has been noted that the chambers of many entrance graves and cists in cairns are boat-shaped (Thomas 1985, 144). Robinson also points out that entrance graves are consistently located close to granite tors, which would have been important navigation aids since the Mesolithic, and that through the construction of these monuments the knowledge and significance of these tors became embedded within the lives of prehistoric islanders (2007, 115-20)

Thomas and Jones (2010, 289), in the most recent exposition on entrance graves, suggest that the Penwith entrance graves may have been communal shrines as much as being repositories for the dead.

The transition between the Early (2500 BC) and Middle (1500 BC) Bronze Age sees the most rapid loss of land and the development of the greatest extent of intertidal area at any time in the history of Scilly. The land area reduced from 31.7 km² to 18.4 km², compared to the modern extent of the islands of 14.7 km², so the loss of land during the period 2500-1500 BC was equivalent to losing almost the entire modern area of the Islands. Changes to the island landscape would clearly have been perceptible over a single human lifespan and thus must have been part of the backdrop against which everyday life and cultural development took place. We know that in Cornwall there is a huge increase in ceremonial monuments, mainly barrows, after 2000 BC (Jones 2005, 138), so, while it may be coincidence that the period of principal use of entrance graves corresponds with this time of rapid landscape change in Scilly, it is also possible that

their proliferation represents a structuring of the Island population's response to the drastically shrinking landmass and the concurrent agricultural implications.

4.7.2 Cairns and cists

The Cornwall and Scilly HER records a total of 384 cairns in Scilly, the majority of which occur within cairn-fields. Few cairns have been excavated on Scilly and it is therefore difficult to construct a chronological sequence for these monuments. The only radiocarbon determination is from a small cairn at Porth Killer, St Agnes, which is dated to 2030-1667 cal BC (Wk-5690, 3512 ±70BP) (Ratcliffe *et al* forthcoming). Cairns in Cornwall date primarily to the late third and early second millennium cal BC, confirmed by radiocarbon determinations from several cairns and barrows (Jones 2005; Jones and Quinnell 2011). Rather than their contents, the main contrast between cairns and entrance graves is the lack of access to human remains in cairns after burial.

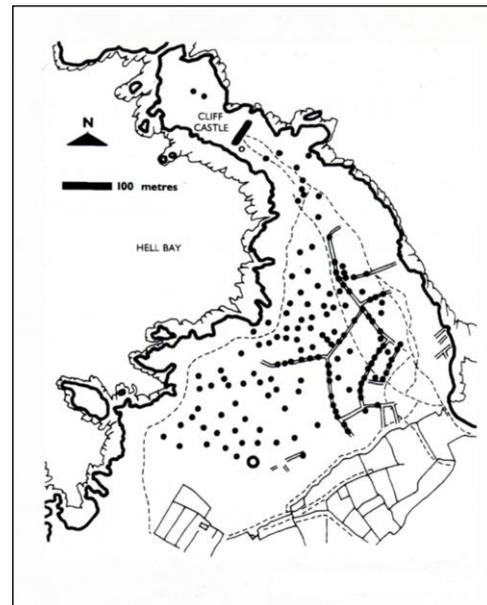


Fig 4.9 Plan of Shipman Head Down, Bryher: the black dots are cairns (© Cornwall Council)

The largest of the cairn-fields is located on Shipman Head Down at the north end of Bryher (Fig 4.9; Breen 2008). It comprises 134 cairns arranged in both clusters and rough alignments which follow slight ridges or contours. This cairn-field is located upon the highest and most exposed part of the headland within a zone enclosed by the 20m contour. The second largest cairn-field is on the highest contours of Castle Down, Tresco, comprising 78 cairns. The cairn-field on Wingletang Down, St Agnes comprises 43 cairns. At the remaining five cairn-fields (Chapel Down, St Martin's; Kittern Hill, and Clapper of Works Down, Gugh; and Peninnis Head Down and Salakee Down, St Mary's), a similar scenario occurs with cairns occupying exposed headlands.

Some of the cairns within cairn-fields have been interpreted as agricultural clearance mounds. This interpretation has arisen through their association with boulder walls that connect cairns such as those found on Shipman Head Down and Kittern Hill (Ratcliffe 1994; Thomas 1985; below, section 5.4.4). The sequential relationship between cairns and walls on the downs is difficult to determine and might only be clarified through excavation.

The interpretation of these walls as evidence for agricultural intensification has been considered problematic because these downs are the most barren and exposed places in the archipelago and are unlikely to ever have been exploited for agriculture, so that perhaps other interpretations for these stone structures should be sought (Lousley 1977; Thomas 1985, 132-3; Breen 2008). At the same time it should be remembered that the climate was more clement in the Bronze Age and that Bodmin Moor and the Penwith Moors, equally inhospitable today, contain considerable evidence of Bronze Age settlement and agriculture (see below, section 5.3.4, for further discussion).

A range of sizes and types of cairn occur on Scilly, all employing similar structural principles. However, due to the lack of excavation within cairn-fields we do not know how this variation relates to the use of these monuments. Most cairns are relatively small with visible diameters falling between 4m and 7m and seldom rising over 0.5m in height. In a small number of instances, however, larger cairns occur, with dimensions of up to 22m in diameter and 2.2m in height. Cairns vary in form, the most basic comprising small piles of loose boulders, whilst kerbs of orthostats surround others. Questions remain as to how many cairns contain burial deposits, but on the basis of excavated examples it would appear that a significant proportion contain stone-lined cists or burial pits (*cf* Thomas 1985, 129-33). In a few instances, such as North Hill, Samson, and Hillbenigates, St Martin's, cists beneath cairns have been identified through excavation (O'Neil *nd e*; Smith 1863), while in other instances the presence of a cist is suggested by depressions within the fabric of the cairn, resulting from antiquarian robbing. A cairn on North Hill, Samson, contained a carefully constructed central cist, held together with mortise and tenon joints, a technique more akin to woodworking than stone working (Smith 1863; Piggott 1941; Ashbee 1974).

Cists are also found on Scilly without covering cairns, as at Old Town (McKenzie 1965), Content Farm (Ashbee 1954) and Town Lane (Crawford 1928), all on St Mary's. The dating of these cists is problematic because of limited and poorly documented excavation and the apparent absence of datable finds, although a radiocarbon determination of 1893 – 1742 cal BC (3492 ±28; OxA-26373) has recently been obtained from cremated human bone from the Old Town cist (Mulville and Sawyer *forthcoming*). By analogy with similar monuments on the Cornish mainland, these monuments should belong to the early second millennium cal (Jones and Quinnell 2011). The classification of flat cists as a separate burial tradition to cairns should be treated with caution as, in a number of instances, archival reports suggest small cairns may once have covered them (Ashbee 1952-53, 30; O'Neil *nd a*).

A recurring feature of cairns is the incorporation of natural earth-fast grounders and outcrops. In a few instances, the grounders incorporated are substantial and would have been clearly visible within the monument after construction. The most striking example of this occurs on Castle Down, Tresco, where a large grounder, known as the 'Borlase Altar', is incorporated within a kerbed cairn (Quinnell 1978). Similarly, a large grounder covered in solution holes on Wingletang Down is encompassed within a kerbed cairn, while at Hillbenigates (also known as Flat Rock Hill) a cairn containing a cist was constructed directly on top of a large grounder, with the burial chamber constructed within a natural hollow in its surface (O'Neil *nd e*). These tor and boulder cairns are also a key feature of the Cornish Bronze Age where they are sometimes associated with multiple urned and unurned cremation burials (Borlase 1879; Tilley and Bennett 2001). On Scilly many entrance graves are also associated with natural rock outcrops (Ashbee 1974, 82-84). In some instances the similarity between these monuments may have resulted in misclassification.

4.7.3 Standing stones and stone rows

The Cornwall and Scilly HER identifies 13 possible standing stones, five of which are upstanding. These standing stones are found throughout the archipelago but little evidence for their date is available. An excavation at the base of a standing stone on Gugh (Fig 4.10) found no evidence of associated features or finds (Borlase 1756, 40). On Mount Flagon, St Mary's (Fig 4.10), and Higher Town, St Martin's, standing stones are found at the centre of small cairns, whilst at Gun Hill and Chapel Down, St Martin's, standing stones are used to form the sides of stone cists. A standing stone on Cruther's Hill, St Martin's, recorded as upstanding by Borlase (1756), lies fallen amongst gorse. Ashbee interprets a large stone incorporated within a house at Halangy Down, St Mary's, as a 'decommissioned' standing stone. The surface of this stone is decorated with a pecked-out geometric design which he suggests represents a stylised face (Ashbee 1966, fig 2; 1974, 153). Borlase recorded a standing stone, the 'High Stone'

on Peninnis Head, St Mary's, and this has been possibly identified as a now recumbent monolith (Seaney 2010b).



Fig 4.10 Standing stones: left Gugh (photo: Ian Dennis) and right Mount Flagon, St Mary's (photo: Cornwall Council)

A possible stone row has been recorded on Par Beach, St Martin's, located midway along the beach between the high and low tide (Fulford *et al* 1997; Ratcliffe 1990, 22, figs 8 and 9), it consists of three granite orthostats set along an east-west alignment and with an overall length of 15m. The location of a stone row on Scilly, within a coastal context, is without precedent and suggests caution. In 1949, O'Neil excavated a prehistoric house on Par Beach in close proximity to the suggested stone row (O'Neil nd a) uncovering two parallel rows of stones running along the beach, between high and low tide which he interpreted as field boundaries. The lower wall consisted of a single row of orthostats between which sections of coursed walling occurred. The location, description (except for the coursed sections), and alignment of this wall match well with that of the suggested stone row and it is possible that the lower wall identified by O'Neil and the recently identified stone row are the same feature. If this interpretation is correct, the higher of O'Neil's wall is now buried beneath sand dunes further up the beach. A photograph taken in 1990, when there was much less sand on Par Beach than today, shows one of the field boundaries and the stone row (Fig 4.11).

Two more stone alignments were identified on Castle Down, Tresco by Dave Hooley during the Monuments Protection Programme (MPP). Stone rows have a wide distribution in Britain, with concentrations in the south west on the uplands of Dartmoor and Bodmin Moor (Barnett 1982; Butler 1997; Johnson and Rose 1994).



Fig 4.11 A field boundary (centre right) and the possible stone row (top left) on Par Beach St Martin's in 1990; only the tips of the stone row are now visible (photo: John Poat)

4.7.4 Pits

The digging of pits and burying of pottery and other artefacts and deposits is a well-attested phenomenon in the British Isles during the later prehistoric period (*cf* Richards and Thomas 1984; Bradley 1990; Bradley 2007; Cole and Jones 2002-3; Jones and Reed 2006; Anderson-Whymark and Thomas 2011) and extensive archaeological evidence has been discovered in Cornwall for the curation and 'structured deposition' of broken potsherds, worked stone and other artefacts (e.g. Gossip and Jones 2007).

It has been suggested that the act of pit digging and deposition may have been intended to render activity memorable and fix a connection between people and place. In Cornwall the shape of pits and repertoire of materials placed in them seems to have changed little from the beginning of the Neolithic period into the Bronze Age, other than the changing ceramic types deposited in them, although it has been argued that the character of such pits generally developed over time, with more care taken over the objects selected and the pits themselves being better crafted (Cole and Jones 2002-3; Jones and Reed 2006).

A growing number of prehistoric pits are being identified in Scilly and their significance is being reassessed (see below, Section 5, for further discussion). Two pits excavated at East Porth, Samson, in 1971 contained the largest assemblage of Neolithic pottery so far found in Scilly, as well as some carefully selected stones and a fragment of pumice (Neal forthcoming a). Neolithic pottery was in the vicinity of a pit exposed in the cliff face at Old Quay, St Martin's (Quinnell 1994), and two nested vessels found in pits in a field near Kallimay Point, St Agnes, in 2007, are tentatively dated to the Early Bronze Age (Johns and Quinnell, forthcoming).

4.8 National and international context

4.8.1 Introduction

The Isles of Scilly have the potential to make a significant contribution to our understanding of the Neolithic and Early Bronze Age more broadly – at both a national and international level – in a number of ways. Equally, as with any region, it is vital that we seek to understand the specifics of the Islands' archaeology in relation to this bigger picture.

4.8.2 The Mesolithic/Neolithic transition

As discussed above (Section 3), the Mesolithic-Neolithic transition in Britain and Ireland is a topic which has witnessed a considerable resurgence of interest in recent years (for example, Thomas 1999; 2008; Pailler and Sheridan 2009, Whittle *et al* 2011). One of the major issues debated is the broader process by which the transition occurred: indigenous adoption, migration/invasion from the European mainland, or a combination of the two (Garrow and Sturt 2011). A secondary, directly related issue, has been the actual route(s) that either native British or migrating northern European mariners (or both) would have taken between mainland Europe and the British Isles and Ireland (Callaghan and Scarre 2009, Sheridan 2010, Whittle *et al* 2011).

The 'western seaways' of Britain have long been considered crucial, geographically, to any understanding of these processes of transition (Callaghan and Scarre 2009; Garrow and Sturt 2011). In recent years further weight has been added to this suggestion, as it has been noted that many of the earliest glimpses of Neolithic practices and material culture occur within and around the western seaways zone: early cow bones have been found in Ireland (Woodman and McCarthy 2003), potentially early pottery in western Scotland (Sheridan 2000), possibly very early cereal pollen in the Isle of Man (Innes *et al* 2003), and a passage tomb of earlier Neolithic date in Devon (Sheridan *et al* 2008).

If we accept that people were indeed journeying between Britain, Ireland and mainland Europe within this zone, the importance of a clear understanding of the late fifth and early fourth millennium cal BC archaeology of Scilly in relation to this question becomes clear. The possibility that the islands may have witnessed very early Neolithic settlement from the Continent or Cornwall as a consequence of this maritime activity is raised. Equally, if the islands did not see such early settlement, that in itself tells us something important about the process of transition: either that early colonists were seeking only large land masses on which to settle, or that they journeyed in short hops along the shore of the mainland rather than carrying out long-distance sea voyages (Garrow and Sturt 2011, 68).

At present, unfortunately, we know very little indeed about the earliest Neolithic sites on the islands (Kirk 2004; Robinson 2007; and see above, Section 4.4.3), and even less about the precise date(s) of any such activity. There is considerable potential for future research in Scilly and Cornwall to assess relationships between the latest Mesolithic assemblages and Early Neolithic flint scatters / pit sites, etc – for example how do they relate to one another spatially? It is also worth noting the possible similarities between locally manufactured Early Neolithic pottery found at various locations in the islands (see above, Section 4.5.1) to that found on mainland Cornwall.

4.8.3 Continuing Neolithic and Early Bronze Age maritime connections

The subject of maritime connections around the western seaways in the later third and second millennium cal BC is a very important one, which is not only of relevance in relation to the Neolithic / Early Bronze Age transition. The Early Bronze Age in particular has long been viewed as a period in which long-distance, trans-European networks of interaction were important: Beaker pottery is found across a wide area of western Europe (for example, Vander Linden 2007), and the raw materials required for bronze moved over long distances (Ottaway and Roberts 2008). Intriguingly, given these pan-European connections and similarities, the evidence from the Isles of Scilly

during this period does not fit particularly well with the broader picture even across the rest of Britain. Beaker, Collared Urn and other Early Bronze Age pottery types current across most of Britain are rare, with even the Trevisker style found across mainland Cornwall being relatively uncommon (Jones and Quinnell 2006; Pollard *et al* 2008, 86). Jones and Quinnell (2006) have suggested that in Cornwall, Beakers were adopted relatively late from further east in England, rather than from the Continent, and were slotted in alongside pre-existing local pottery traditions. It is quite possible that, in the Isles of Scilly, we are seeing a more extreme version of a similar process, with very few Beakers at all ever having been used.

Having noted this pattern, which appears to be reflecting a strong assertion of local regional identity (as seen in the uptake of pottery styles at least), it is interesting to note other patterns which show a somewhat contrasting picture. Jones and Thomas (2010, 291-2), for example, have discussed the possibility that entrance graves, which are abundant in the Isles of Scilly (above, Section 4.7.1), represent one manifestation of a very broad phenomenon whereby closely comparable tomb types also emerged in Ireland, Scotland and perhaps even the Channel Islands at around the same time (c 2100-1700 cal BC). Intriguingly, given the above discussion of pottery styles, Jones and Thomas suggest that these shared tomb styles may actually been a consequence of the same maritime connections which led to the spread of artefacts, including Beakers and lunulae (Jones and Thomas 2010, 292). Recent research into the British Neolithic has tended towards the production of regional studies (for example, Brophy and Barclay 2009; Anderson-Whymark and Thomas 2011), and a consequent understanding of regional variability across Britain. In this context, the Isles of Scilly offer an excellent opportunity to investigate the way in which local identities and broader trans-regional connections were played out materially during the Late Neolithic and Early Bronze Age.

4.8.4 Diet and taskscapes

One issue which has caused considerable debate in recent years is whether or not there was a dietary 'sighting of the sea' at the beginning of the Neolithic. Based on isotopic evidence, it has been argued by some that a (possibly cultural) rejection of fish and other marine resources occurred at that time (Schulting 1998; Richards and Hedges 1999; Thomas 2003). Others have pointed out, however, that the archaeological evidence – particularly in island contexts – supports continued fishing (and thus presumably also the eating of fish) well into the Neolithic (Milner *et al* 2004, 12; Sturt 2005). Clearly, if the Isles of Scilly were being visited periodically, perhaps specifically for the purpose of fishing, then archaeological evidence there has significant potential to contribute to this often heated debate, again adding south-western substance to a picture glimpsed further afield. However, unburnt human skeletal material is rare in Scilly and in the south west in general, and is unlikely to survive from the Neolithic or Early Bronze Age because of the soil acidity, which means that it has not been possible to carry out stable isotope analyses. Future recovery of suitable human bone for isotope analyses is therefore a priority to answer questions of changing dietary preferences.

The character of Neolithic and Early Bronze Age settlement, and of the broader distribution of tasks across the landscape at that time, have also been much-debated in recent years (for example, Gibson 2003; Rowley-Conwy 2003; Garrow 2010). The unusual geographical location of the Isles of Scilly – in terms of Britain as a whole, at least – ensures that the islands' archaeology has a strong contribution to make in relation to these debates. At present, many would agree that, broadly speaking, across much of southern England, people remained fairly mobile throughout the Neolithic and Early Bronze Age, moving intermittently around the landscape rather than settling permanently in one place (for example, Whittle 1997; Brück 1999b; Pollard and Healy (eds) 2008, 80-83). As might be expected, particular places often came to be associated with particular tasks (Edmonds 1997). At present, the current consensus of opinion suggests that the Isles of Scilly were themselves occupied only intermittently before the Early Bronze Age, with perhaps seasonal visits from people who more

usually resided in mainland Cornwall, perhaps in order to collect shellfish and hunt sea mammals or as a landfall during deep-sea fishing trips (cf Robinson 2007, 65). Intriguingly, however, there is evidence for agriculture preceding the construction of entrance graves, which may hint at settlement of a more permanent nature (above, Section 4.4.1). In many ways, therefore, the picture for the Isles of Scilly – of intermittent occupation, and of task-specific associations – matches that for much of southern England rather more closely than might have been expected. Again, further evidence revealing in more detail the character of occupation sites in the islands during this period would help flesh out what is at present a rather patchy picture.

4.8.5 Summary

The key maritime location of the Isles of Scilly in relation to assumed networks of connectivity between the European mainland and Britain and Ireland means that a good understanding of the islands’ Neolithic and Early Bronze Age archaeology is crucial to this broader national and international picture. Equally, their offshore location ensures that they have the potential to make a crucial contribution to our appreciation of marine exploitation and taskscapes more generally during this period. The archaeological evidence for wider contacts in Scilly suggests they are both long-term and varied, including occasional imports such as pottery, metalwork, pumice (although this might have floated to the Islands) and faience which reflect a tradition of adopting some things but rejecting others. Entrance graves and cairns also provide evidence for contact and possibly a shared wider identity; the local form of pottery may speak of a more nested identity which developed during the Bronze Age, suggesting that people may have wanted to affirm wider ancestry and connections at some times but a more local identity at others.

4.9 Scientific dating

4.9.1 Radiocarbon dates

The 39 radiocarbon determinations listed below in Figure 4.12 below have all been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period to which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they originally appeared.

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
GU-5061	5210 ±50	4230-3947	Par Beach, St Martin’s	Basal 10mm of exposed peat, - 2.02m OD	Ratcliffe & Straker 1996, 19, 127
Wk-19091	4968 ±38	3926-3654	Dolphin Town, Tresco	Potsherd residue, layer 15 in house 13. This is an anomalous date – the potsherd is BA	Taylor & Johns, forthcoming
GU5060	4510 ±60	3486-3017	Par Beach, St Martin’s	Basal 50mm of exposed peat, - 0.21m OD	Ratcliffe & Straker 1996, 19, 127
GU-5394	4310 ±60	3263-2703	Porth Mellon, St Mary’s	Basal 20mm of exposed peat	Ratcliffe & Straker 1996, 127
SUERC-32991	4310 ±30	3010–2880	Par Beach, St Martin’s	Bulk: organic sediment (humic acid fraction), 16-17cm below surface of intertidal peat	Marshall <i>et al</i> 2012
OxA-23825	4377 ±30	3100-2900	Par Beach, St Martin’s	Bulk: organic sediment (humin fraction) 5–6cm below surface of intertidal peat	Marshall <i>et al</i> 2012
GU-5393	4280 ±50	3082-2699	Porth Mellon, St Mary’s	Sample 1 (top 40mm of exposed peat)	Ratcliffe & Straker 1996, 129
SUERC-32992	4345 ±30	3080-2890	Par Beach, St Martin’s	Bulk: organic sediment (humin fraction as SUERC-32991	Marshall <i>et al</i> 2012

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
OxA-23826	4270 ±29	2920-2870	Par Beach, St Martin's	Bulk: organic sediment (humic acid fraction) 5–6cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-38094	4260 ±35	2920-2870	Porth Mellon, St Mary's	Sediment: humic acid, 1-2cm below surface of intertidal peat	Marshall <i>et al</i> 2012
OxA-23859	4269 ±38	2920-2870	Porth Mellon, St Mary's	Monocot stem, 23cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-38098	4235 ±35	2910-2700	Porth Mellon, St Mary's	Sediment: humin fraction, as SUERC-38094	Marshall <i>et al</i> 2012
SUERC-38090	4160 ±35	2890-2580	Porth Mellon, St Mary's	Sediment: humic acid, 28–29cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-38091	4135 ±35	2880-2570	Porth Mellon, St Mary's	Sediment: humin fraction, as SUERC-38091	Marshall <i>et al</i> 2012
GU-5396	3980 ±100	2866-2204	Porth Mellon, St Mary's	Basal 20mm of exposed peat.	Ratcliffe & Straker 1996, 127, 129
SUERC-38093	4160 ±35	2860-2490	Porth Mellon, St Mary's	Sediment: humin fraction, 0–1cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-32925	3980 ±30	2580-2460	Par Beach, St Martin's	Bulk: organic sediment (humic acid fraction) 2-3cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-32926	3980 ±30	2580-2460	Par Beach, St Martin's	Bulk: organic sediment (humic fraction), as SUERC-32925	Marshall <i>et al</i> 2012
GU-5395	3900 ±70	2572-2151	Porth Mellon, St Mary's	Sample 2 (20-40mm towards top of peat)	Ratcliffe & Straker 1996, 127, 129
GU-5392	3810 ±80	2472-2032	Porth Mellon, St Mary's	Sample 2 (wood towards base of intertidal peat)	Ratcliffe & Straker 1996, 129
SUERC-38092	3795 ±35	2350-2130	Porth Mellon, St Mary's	Sediment: humic acid, 0–1cm below surface of intertidal peat	Marshall <i>et al</i> 2012
OxA-X-2465-6	3740 ±30	2270-2030	Par Beach, St Martin's	Domestic cow tooth	Marshall and Bronk Ramsey 2012
HAR-239	3260 ±280	2300-840	Nornour	Charcoal (oak & larch) from lower midden in passage between houses 1 & 3.	Butcher 1978, 29-112
OxA-3649	3620 ±70	2198-1772	East Porth, Samson	Charred seeds (naked barley) from OLS	Ratcliffe & Straker 1996, 62
HAR-4324	3490 ±100	2125-1533	Little Bay, St Martin's	Charcoal (gorse) from heath [60] in House 2.	Neal 1983, 52; <i>Radiocarbon</i> 1985 27 , 83
Wk-5690	3512 ±70	2030-1667	Porth Killier, St Agnes	Basal fill (156) in cist [163] below cairn [154].	Ratcliffe <i>et al</i> forthcoming
OxA-26373	3492 ±28	1893-1742	Old Town Cist, St Mary's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-26372	3386 ±29	1750-1613	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-26364	3365 ±28	1742-1538	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
HAR-1715	3190 ±110	1741-1133	Little Bay, St Martin's	Charcoal from hearth F in House 2	Neal 1983

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
Ox-36363	3319 ± 29	1682-1524	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-3647	3220 ± 70	1682-1323	Porth Killier, St Agnes	Charred seeds (<i>Hordeum sp.</i>) from layer 14 at top of midden in house exposed in cliff-section. C14 dates inconsistent with stratigraphy	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1995, 421-2
GU-5413	3250 ± 50	1636-1422	Porthcressa, St Mary's	Shell (<i>Patella Vulgata</i>) from midden 3 in house exposed in cliff-face	Ratcliffe & Straker 1996, 77
OxA-26370	3276 ± 29	1626-1423	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
HAR-3694	3100 ± 100	1608-1056	Higher Moors, St Mary's	?Peat. Of limited value due to high deviation?	Scaife 1984
OxA-3648	3170 ± 65	1610-1301	Porth Killier, St Agnes	Charred seeds (<i>Hordeum sp.</i>) from layer 14 at base of midden in house exposed in cliff-section	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1995, 421-2
OxA-26367	3246 ± 30	1609-1447	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-4701	3165 ± 55	1605-1304	Porthcressa, St Mary's	Charcoal (Rosaceae) from midden in hutcircle exposed in cliff-face	Ratcliffe & Straker 1996, 77; <i>Archaeometry</i> 1995, 421-2
OxA-26368	3215 ± 28	1531-1422	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming

Fig 4.12 List of Neolithic and Early Bronze Age radiocarbon dates

4.9.2 OSL dating

Optically Stimulated Luminescence (OSL) dating was applied to sand-sized quartz taken from clean grey sand between intertidal 'peat' units found at Porth Mellon, St Mary's, during the Lyonesse Project (Roberts 2012).

Location	Lab no.	Context	Material	OSL Age
Porth Mellon, St Mary's	161/LPPM1-1	15-17cm below surface of intertidal peat	Quartz	4750 ± 1210
Porth Mellon, St Mary's	184/LPPM-2	0.11 ± 0.02m down core	Quartz	4630 ± 250
Porth Mellon, St Mary's	184/LPPM3B	0.03 ± 0.01m down core	Quartz	4290 ± 250
Porth Mellon, St Mary's	184/LPPM3A	0.17 ± 0.02m down core	Quartz	4120 ± 250

Fig 4.13 List of Neolithic and Early Bronze Age OSL Ages, expressed as years before AD 2010, rounded to the nearest 10 years

5 Later Bronze Age and Iron Age

Edited by Charles Johns with contributions from Kevin Camidge, Dan Charman, Ralph Fyfe, Andy M Jones, Steve Mills, Jacqui Mulville, Henrietta Quinnell, Paul Rainbird, Helen M Roberts, Gary Robinson, Niall Sharples and Sean R Taylor

5.1 Introduction

The Isles of Scilly contain a large number and diverse range of Later Bronze Age and Iron Age sites and artefacts including settlements and field systems, cliff castles and cemeteries, pottery and metalwork. The Islands hold a wealth of environmental data in the form of buried peat deposits while the enigmatic remains of stone walls and possible hut circles in the subtidal and intertidal zones have been noted since the mid-eighteenth century. The rich archaeological record and the Islands' pivotal position on the Atlantic façade means that there is the potential to pose major research questions relating to Later Bronze Age and Iron Age settlement, Iron Age funerary and ritual practices, the development of British metalwork and the introduction of insular Celtic art, as well as questions relating to patterns of exchange and contact throughout the Late Bronze Age and Iron Age. The main characteristics of Scilly's Later Bronze Age (1500 to 800 BC) and Iron Age (800 BC to AD 43) resource are summarised in this chapter.

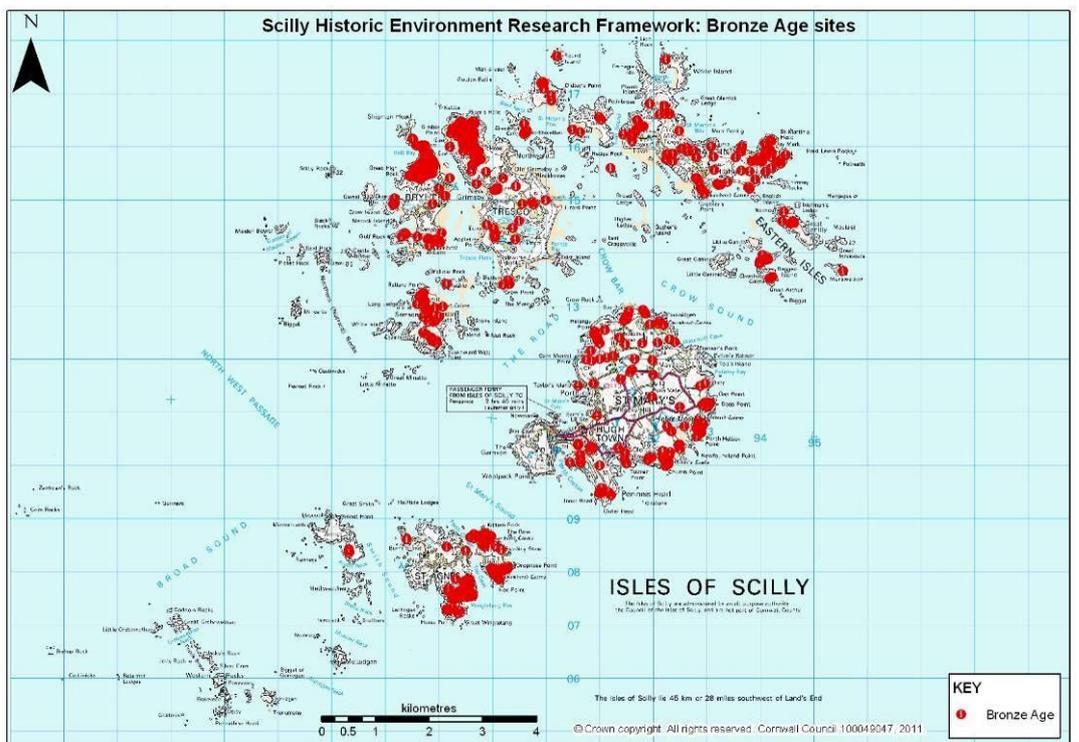


Fig 5.1 Bronze Age sites recorded in the Cornwall and Scilly HER

5.2 Environmental background

The environmental background of Scilly during this period was summarised for the South West Archaeological Research Framework (Straker *et al* 2008, 111).

Pollen analysis and assessment covering the later part of the Bronze Age and the Iron Age has been carried out at various locations in Scilly ranging from the sequences at Higher and Lower Moors on St Mary's (Scaife 1984; with some reinterpretation by Ratcliffe and Straker 1996), the intertidal organic soils on Crab's Ledge, Tresco (Iron Age: Ratcliffe and Straker 1996) and buried soils at Bar Point, St Mary's (Iron Age: Evans 1984), Innisidgen, St Mary's (Dimpleby 1976–7), Halangy Porth, St Mary's

(probably Iron Age: Dimpleby *et al* 1981; Dimpleby in Ashbee 1996, 171–3) and below the rampart of the cliff castle on Shipman Head, Bryher (Ratcliffe and Straker 1996). At Higher and Lower Moors, some regeneration of the birch, oak and hazel woodland is evident in the Middle to Late Bronze Age, with herbaceous and cereal pollen also pointing to some open areas (Straker *et al* 2008, 111).

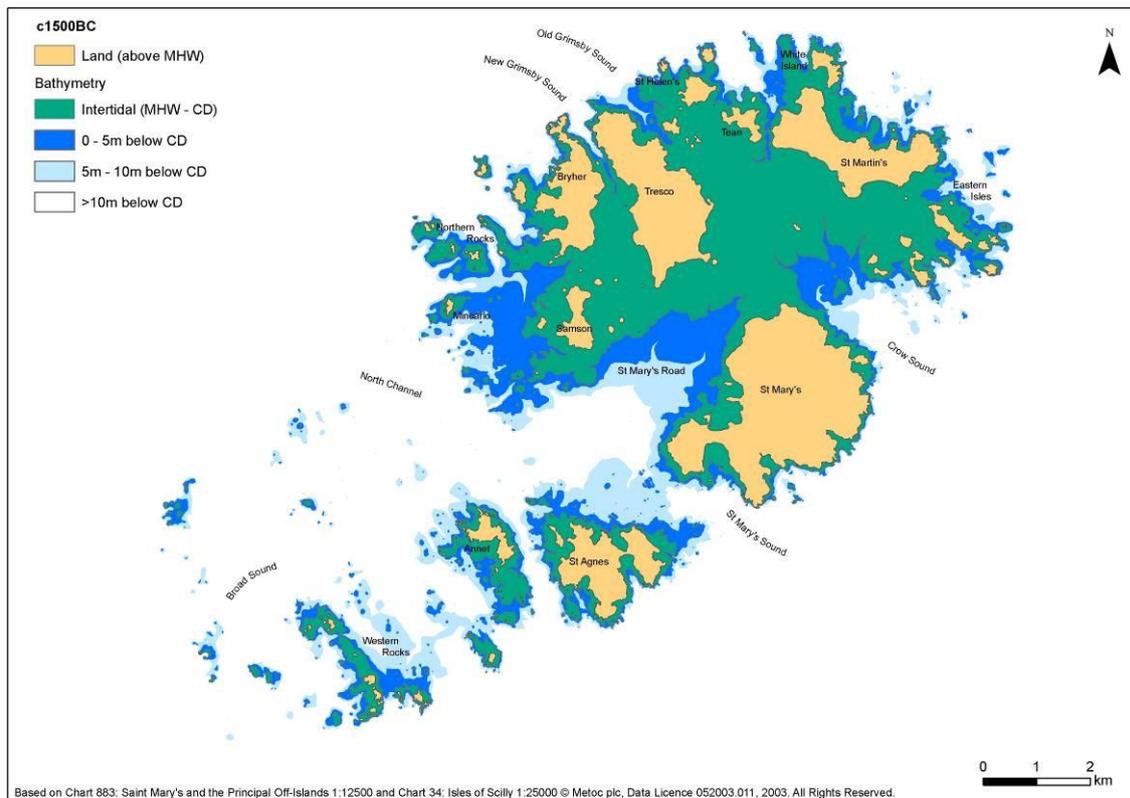


Fig 5.2 Inferred submergence model c 1500 BC, based on data from the Lyonesse Project (Charman *et al* 2012); all details as for Fig 3.3

The start of the main phase of woodland clearance in the Islands is dated at Higher Moors to the Late Bronze Age – Early Iron Age (815-412 cal BC, HAR-3724, 2540±80; 753-234 cal BC, HAR-3723, 2360±60). The soil pollen analyses noted above all testify to open environments, with a little alder, oak, birch and hazel recorded at Bar Point but not at Halangy Porth. The open ground is mainly grazed grassland but at Innisidgen arable was also suggested. Pollen of heathland plants is rare, but the charcoal of heather and gorse/broom at Bonfire Carn and Porth Killier show that it was used as fuel from as early as the Middle Bronze Age (Ratcliffe and Straker 1996). The Crab's Ledge pollen and plant macrofossils are of grasses and members of the Cheopodiaceae family including annual sea blite, suggesting coastal grassland and saltmarsh (Ratcliffe and Straker 1996; Straker *et al* 2008, 111-2).

The Crab's Ledge saltmarsh deposits on Tresco show that saltmarsh was present during the Late Bronze Age and Iron Age, with development beginning from at least as early as c 1000 cal BC and continuing for perhaps another 2000 years. The Crab's Ledge and Bathinghouse Porth deposits probably represent the remaining fragments of a slowly retreating saltmarsh area that previously extended across the whole of St Mary's sound at different times during the late Neolithic through to the first millennium AD (Charman *et al* 2012).

5.3 Middle and Late Bronze Age (1500 – 800 BC)

5.3.1 Chronology

Radiocarbon dates and artefactual assemblages from sites excavated during the last 15 years are beginning to provide an increasingly secure chronology for the Middle and Late Bronze Age in Scilly. Tables of radiocarbon determinations, OSL ages and magnetic dates relating to the period are presented at the end of the chapter (Figs 5.15, 5.16 and 5.17).

5.3.2 Landscape

By the Middle Bronze Age, the configuration of the islands was approaching that of the present day with the most dramatic difference being that there was a vast intertidal area stretching right across St Mary's Roads and covering almost all of the region between the main islands of St Martin's, the Eastern Isles, Tresco, Bryher and Samson. It should be stressed that much of this would have only been covered during spring tides, such that it would have remained a useful part of the land, especially for grazing, and would have been passable with ease almost all of the time. It seems very likely that there were extensive saltmarsh areas as part of this intertidal zone, although no deposits from this period were found by the Lyonesse Project (Charman *et al* 2012).

After 1500 BC, the rate of change slowed significantly, and there was a slow loss of both land and intertidal areas throughout the rest of the Bronze Age. The extensive intertidal area between the main islands remained largely intact, although it was being gradually lost due to landward encroachment of the sea up St Mary's Roads from both the west and the east. Again much of this zone may have remained usable for grazing and certainly would have provided no hindrance to passage between the islands at the end of the Bronze Age (*ibid*).

5.3.3 Settlement

Most known settlements are clustered within specific topographical locales along the coastlines of Scilly (Fig 5.1). This distribution might be a result of a lack of coordinated fieldwork within the interior of the islands. An evaluation of geophysical anomalies at Normandy Farm, St Mary's in 2006, for example, revealed evidence of Late Bronze Age settlement activity (Mulville *et al* 2007, 26-35), while excavations in 2009-10 revealed Late Bronze Age settlement remains near Higher Town, 200m inland from the coast on St Agnes (Fig 5.4; Taylor and Johns, in prep).

The identification and interpretation of houses is frequently problematic, especially when they occur within the present day intertidal zone, where movements of sand, gravel and beach boulders obscure them (cf Camidge *et al* 2010). Equally, houses identified in present day cliff-sections are difficult to interpret because of their limited exposure and constant erosion. The character of several present day intertidal and cliff exposed sites has been confirmed through survey and excavation, but the interpretations of others remain questionable (Ashbee 1983; Camidge *et al* 2010; Gray 1972; Ratcliffe and Straker 1996, 87; Thomas 1985).

The stone-built houses of this period are constructed from granite blocks laid in courses or set as orthostats, and are frequently terraced into hill slopes or constructed within natural hollows. Walls are substantial, measuring 1-2.5m thick, double-faced and containing a central core of earth and rubble. At Nornour (Fig 5.3) and Little Bay houses were dug into substantial middens (Butcher 1978; Neal 1983). Postholes are largely absent from house interiors and it is not known how they were roofed. At Nornour, house walls remain standing in places to over 2m in height and appear to be corbelled (Dudley 1967; Butcher 1978). Other houses have substantial internal partition walls that may have supported cross beams, onto which a roof of stone or turf could have been constructed. Although some house roofs may have been corbelled, the majority show no evidence for this and we should presume that this method of roofing, if adopted, was restricted to only a small percentage of houses. A further variation in

roof construction is found at English Island Carn, where O'Neil detected postholes within the earthen wall cores of a house. These post holes sloped inwards towards the house interior at an angle of approximately 45°, suggesting the house had a pitched roof constructed around a central ridgepole (Ashbee 1974; O'Neil 1949a; 1949b; nd h).

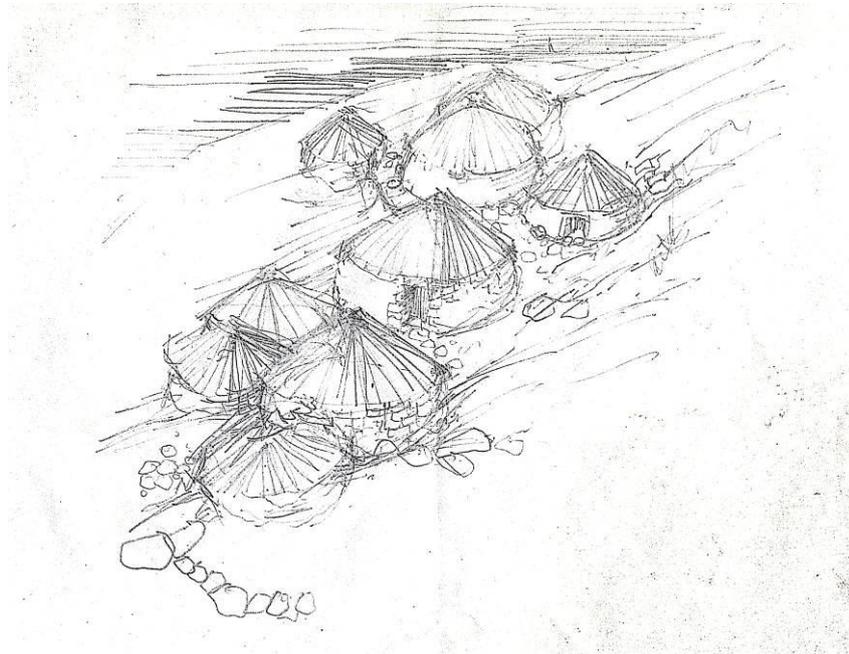


Fig 5.3 Sketch reconstruction of the settlement at Nornour (after David Neal)

Single houses are rare and many apparent examples are shown on further investigation to form part of larger house groups. For example, in 1936 Gray (1972, 43) detected the remains of a single house within a *ram* cliff at Porth Killier but when this site was revisited and recorded in 1985 it proved to comprise not one but three houses (Ratcliffe and Straker 1996, 125). Subsequently, geophysical survey has shown that this settlement is more substantial than previously thought, extending inland for a further 20m (Ratcliffe 1989, 10). Similarly at Halangy Porth a single house exposed in the cliff-section is now shown to be at least two houses (Ashbee 1983; Ratcliffe and Straker 1996). At Little Bay, what O'Neil identified as a single house was shown on subsequent excavation to be a group of at least four houses (Neal 1983). Similar scenarios are also recorded at other sites on the Islands such as English Island Carn, Halangy Down and Nornour, where in each instance what was initially interpreted as single houses have consequently been shown to comprise more substantial settlements (Ashbee 1999; Butcher 1978; Neal 1983; Ratcliffe 1991).

Settlements tend to be reused over long periods, with houses occupied, abandoned, modified and reoccupied within relatively short periods. The excavation of a settlement of four houses at Little Bay suggests that, here, houses were not occupied simultaneously but constructed, modified, abandoned and rebuilt (Neal 1983, 58). For example, radiocarbon dates from a sequence of internal hearths in house B at Little Bay demonstrates occupation between 2125-1533 cal BC (HAR-4324; 3490 ±100 BP) and 1191-799 cal BC (HAR-1726; 2780 ±80 BP) separated by episodes of abandonment and modification, evidenced by infilling layers consisted of soil, rubble, midden and broken artefacts (Neal 1983, 52-56). At Dial Rocks, Little Arthur, May's Hill and Porth Killier, a similar scenario of house abandonment and reoccupation is suggested from the chronologically mixed assemblages recovered (O'Neil nd d; nd f; Ratcliffe 1991; Ratcliffe and Straker 1996). For example, artefacts recovered from houses at Dial Rocks contain artefacts dating from the second millennium BC to the first century AD, whilst at Little Arthur a mixed assemblage of first and second millennium BC pottery is

associated with a house that was constantly modified and rebuilt (O'Neil nd f; Ratcliffe and Thorpe 1991).



Fig 5:4 Excavation of a Late Bronze house at Higher Town, St Agnes, in 2009 (photo: Cornwall Council)

Recent archaeological research on mainland Bronze Age settlement sites has shown that the structured deposition of objects played an important part in house abandonment (Brück 1996; 1999b), and in Cornwall the abandonment of lowland Bronze Age settlements resulted in houses being intentionally filled with soil and rubble to look like burial cairns (e.g. Nowakowski 1991; 1999; 2001). Structured deposition and 'middening' (the ritualistic re-working and re-deposition of midden deposits) have scarcely been considered in regard to prehistoric settlement in Scilly and would be rewarding subjects for future work. At Higher Town, St Agnes, for example, a roundhouse was filled with granite rubble containing a large amount of Middle to Late Bronze Age / Early Iron Age pottery, flint and stone artefacts, possibly with the intention of making it into a cairn (Fig 5.4; Taylor and Johns, in prep).

Pottery vessels have been found in clay-lined pits, which are often associated with settlements. A layer of occupation soil at Bar Point, St Mary's, for example, contained several small pits, one of them filled by a complete pot standing upright (rim missing), while several of the others contained sherds (Butcher and Johns, forthcoming). At Pendrathen, also on St Mary's, the lower part of a flat-based coarse vessel was found in a clay-lined pit dug into the *ram* (Samuels 1975, 117), while a similar vessel was found in a clay-lined pit at Halangy Porth, St Mary's, in 1936, containing about a dozen sherds from two or three different pots, along with some calcined bone and charcoal (Gray 1972, 34-5). It is sometimes difficult to distinguish ritual pits from domestic ones (Jones and Reed 2006, 20-1), but these Scillonian pits seem to be domestic with a possible storage function, the clay pit-lining making them watertight.

At Higher Town, St Agnes, a freestanding loess-encrusted vessel was found in a stone-lined chamber within a structure. It is possible that this pot represents a halfway stage in which the pot was coated in loess before being placed into a clay-lined pit. On the

same site were 12 shallow pits apparently dating to the Middle or Late Bronze Age, which may have been dug to extract the soft natural clay in this area, either for the manufacture of pottery or to coat the outside of the pots (Taylor and Johns, in prep).

5.3.4 Field systems

In the 1970s Fowler and Thomas recorded field systems on Halangy Down and Bar Point, St Mary's, on Chapel Down, Porth Morran, and Burnt Hill, St Martin's, at Gimble Porth, Tresco, on the islands of Tean and Gugh (Fig 5.5) and, in particular, on North and South Hill, Samson, which they considered to be 'one of the most significant areas of archaeological importance anywhere in the British Isles' (1979, 178). They also noted field enclosures at Shipman Head Down and Heathy Hill on Bryher, and on St Agnes, St Helen's, Northwethel and Arthur in the Eastern Isles (*ibid*).

The walls are of several different constructive techniques: single lines of orthostats, sometimes with the gaps filled by rubble; double-faced walls, often incorporating boulder-sized grounders, with rubble infill; stone banks which in some places have become lynchets (e.g. Heathy Hill, Bryher, and North Hill, Samson). In some places apparent lynchets could represent deliberate revetments for terracing as at Halangy Down (Fowler and Thomas 1979, 185-6).

Fowler and Thomas described the fields as

'Small, adjacent, rectangular enclosures, fairly definitely used as arable plots and for grazing... on South Hill, Samson and Halangy Down, St Mary's, we are looking at the remains of prehistoric arable field systems. On the latter site, an 'early' phase of fields, each c 50m by c 25m, can be discerned, and similar oblong fields probably exist among the much more complex pattern on South Hill...At Porth Morran, White Island, the widths of fields are either c 50m or c 25m, and the lengths at least 200m but there is no obvious evidence of cultivation here, and an 'arable field-system' interpretation is not necessarily correct. The same reservation must apply, for example to the yet unsurveyed complex on Chapel Down, St Martin's. Nevertheless oblong, small, squarish and long strip-like can tentatively be distinguished as three potential types' (Fowler and Thomas 1979, 186).

There are also enclosures of other shapes bounded by walls, such as two roughly oblong enclosures on North Hill, Samson, which are separate from each other and now part of a later field system, and irregular enclosures on Green Bay, Bryher. As well as enclosing, walls also link cairns, which may be funerary monuments or agricultural clearance cairns, as on Shipman Head Down, Bryher, and the northern end of South Hill, Samson (*ibid*).

Seventy-one extant field systems are recorded in the Cornwall and Scilly HER. With the exception of the Iron Age example at Bar Point, St Mary's (below, Section 5.4.4), none of the prehistoric walls on Scilly have been conclusively dated. As discussed above in Section 4.4.1, six Early Bronze Age entrance graves appear to post-date lynchets and many of the walls are thought to date from the Bronze Age.

As discussed above in Section 4.7.2, some of the cairns within cairn-fields have been interpreted as agricultural clearance mounds, an interpretation which has arisen through their association with connecting boulder walls as on Shipman Head Down and Kittern Hill. It has been pointed out that these downs are the most barren and exposed places in the archipelago and are unlikely to ever have been exploited for agriculture so that other interpretations for these stone walls should be sought (Lousley 1977; Thomas 1985, 132-3; Breen 2008). However, it should be noted that the Bronze Age climate was a more favourable one, and that Bodmin Moor and the Penwith Moors with their numerous Bronze Age settlements and field systems seem equally inhospitable today.

Stone walls in the intertidal zone on Samson Flats were first recorded by William Borlase in 1756 and led O G S Crawford to suggest that Scilly was 'the lost land of Lyonesse' (Crawford 1927), although he later considered in an editorial for *Antiquity* that these features might instead be the remains of medieval fish traps (Crawford 1946). Other walls include those on Tresco Flats, Town Beach and Green Bay, Bryher; Appletree Bay, Bathinghouse Porth and Crab's Ledge, Tresco; Bar Point, St Mary's, Par Beach and Porth Morran, St Martin's, and West Porth, Tean.

A detailed survey and interpretation of the intertidal stone walls on Samson Flats was carried out by the Cornwall and Isles of Scilly Maritime Archaeology Society (CISMAS) in 2009/10 (Fig 5.6; Camidge *et al* 2010). The extent and complexity of the exposed remains proved to be greater than was envisaged at the outset of the survey. There were at least two different types which may be of different date and function.



Fig 5.5 Field boundary on Gugh
(photo: Richard O'Neill)

One type was 'boulder walls' comprising medium to large stones set on edge, often just a single line of stones with smaller stones filling the gaps. The other type was 'stone-faced stone walls', courses of flattish stones with larger, more regular stones defining the edges, and irregular rubble forming the core of the wall.

The survey established that the linear stone features could have functioned as fish traps, but it cannot prove that they were actually used as such. One tentative suggestion is that some walls were constructed as prehistoric field boundaries which were then inundated by rising sea levels and subsequently reused as part of a tidal fish trap by the addition of additional walls, possibly in the post-medieval period (Camidge *et al* 2010, 67).

We do not have any direct dating evidence for these intertidal field systems but according to the new sea-level maps their locations correspond to areas which were dry land in the Early Bronze Age, c 2500 to 2000 cal BC, but which had become intertidal by the beginning of the Middle Bronze Age c 1500 cal BC. If they served the purpose of stopping animals straying into more dangerous areas of low marsh these intertidal areas could well have been used for grazing, so the walls could still date to the Late Bronze Age or Iron Age. However, if their purpose was to enclose arable fields they must date to the Early Bronze Age.



Fig 5.6 The intertidal stone walls on Samson Flats can be seen top centre of this aerial photograph, the curving arc to the left is seaweed caught on the contour line (photo: Cornwall Council)

5.3.5 The material world

Metalwork

Bronze was not used for everyday tools in Cornwall until c 1400 BC. In Scilly, where lack of raw materials would have restricted local metal production, traditional tools of stone and bone would probably have stayed in use longer and always have been more common. Only eight Later Bronze Age metal objects have been recorded from the Islands, four of these from settlements: a bronze awl from May's Hill, St Martin's, and three unidentifiable objects from Nornour. The remaining bronzes, a socketed axe from St Mary's, two heavy torcs and a rapier blade fragment from the beach at Nornour, are either unprovenanced or from burials (Ratcliffe and Johns 2003, 9).

An Irish gold bracelet found on the foreshore on the south-west side of St Martin's in 1990 probably originated from a hoard. Its distinctive expanded terminals indicate that it is a Covesea variant dating to c 900 BC; such bracelets have a specific Atlantic distribution (Ratcliffe and Johns 2003, 9; Robinson 2007, 68).

Ceramics

Middle Bronze Age

Scillonian Bronze Age ceramics continued to be used in Middle Bronze Age settlements with stone houses. All the sites investigated and published are situated on the modern cliff edge and excavation has tended to be restricted to narrow strips. Settlements generally appear to have included midden deposits with pottery. The practice of depositing broken ceramics near houses ensures that sites generally produce substantial quantities of pottery but also makes redeposition likely when structures were rebuilt. Consequently it is difficult to determine in many cases how far a context contains ceramics of a single period.

The sites excavated and published are Nornour (Dudley 1968; Butcher 1978), Little Bay, St Martin's (Neal 1983), Halangy Porth (Ashbee 1983) and Dolphin Town, Tresco (Quinnell, 2009-10). Sites for which pottery reports have been prepared but which await full publication are Porthcressa, St Mary's (Quinnell 1994), Porth Killier, St Agnes (Quinnell, in prep a), and Higher Town, St Agnes (Quinnell, in prep f); some stratigraphic and dating data for Porthcressa and Porth Killier has been published by Ratcliffe and Straker (1996). These sites have all, except Halangy Porth, produced at least one radiocarbon determination relating to the Middle Bronze Age, c 1600 -1100 BC.

Unpublished excavations by O'Neil took place on St Martin's at English Island Carn, Great Bay, May's Hill and Par Beach; details of archive reports are given by Robinson (2007, Bibliography). Ceramics from at least four sites not previously known were found in the archaeological work accompanying the excavation of electricity cable trenches in 1984-5 (Quinnell 1991). Details of a further four sites known from retrieval of finds in varying circumstances are listed by Robinson (2007, Appendix M). All these sites appear to have Scillonian Bronze Age ceramics.

The assemblage from Nornour is by far the largest, with the material from Butcher's excavations totalling 4522 sherds (Robinson 2007, 60). However this covers a period from the Early Bronze Age until the Iron Age. This is the only assemblage to be published by type, context and site period, with the data presented in a visually clearer fashion by Robinson (2007, Appendix K).

Fabrics are almost universally granitic, in varying degrees of fineness. Thin-section petrography was carried out for Nornour by D F Williams (in Butcher 1968), with the granitic fabrics demonstrated to include small fragments of granite. Williams (in Neal 1983) also examined the fabrics from Little Bay, apparently without thin-sections, and described these as similar to those from Nornour. R Taylor (in Quinnell 2009-10) included some thin-sections in his examination of the Dolphin Town pottery and again noted granite inclusions which he considered to have been crushed and added to a granitic clay. No petrographic work has taken place on the other sites considered.

It is difficult to provide a comprehensive and comprehensible account of vessel typology and decoration. Halangy Porth, where Ashbee (1983) combined a report on his work with an account of the very large quantities of sherds excavated by Alec Gray in the 1920s and 1930s, appears to have had a large midden in which there were numerous vessels with cord or comb impressed decoration, as well as large plain vessels. There is no radiocarbon dating for the Bronze Age but it is quite possible that most of the ceramic material here is Early Bronze Age in date. At all the other sites vessels with cord and comb impressions are infrequent. At Little Bay (Neal 1983, 62) decorated sherds came from lower stratigraphic levels in buildings. At Nornour decorated sherds are infrequent and at Porthcressa (Quinnell 1994) and Dolphin Town (Quinnell 2009-10) are represented only by single pieces. At Porth Killier (Quinnell, in prep a) a midden preceding the excavated hut circle contained several vessels with grooved or incised decoration and had radiocarbon dates of 1610-1310 cal BC (OxA-3648) and 1680-1320 cal BC (OxA-3647). Otherwise on all sites except Halangy Porth plain vessels predominate. These are principally of Nornour Types 1 to 7, simple jars with slight necks and everted rims, vessels with straight sides or slightly closed forms. It appears on current evidence that for much of the Middle Bronze Age, plain wares of simple form made up most of the ceramics on domestic sites. Decorated vessels either belonged to the early part of this period or were made infrequently, perhaps for some special use.

Imported gabbroic Trevisker sherds are now recognised in the assemblage from Higher Town, St Agnes (Quinnell, in prep e).

Late Bronze Age and Early Iron Age

In mainland Cornwall two sites, Higher Besore (Quinnell in Gossip, forthcoming a) and Scarcewater (Quinnell 2010), have recently produced Late Bronze Age Plain Ware (LBAPW) assemblages with radiocarbon and artefact dating relating to the eleventh to

ninth centuries BC. The most common forms are straight-sided jars and small shouldered jars. Bowls with carinated shoulders which occur in LBAPW elsewhere are not present. The earliest mainland context with a carinated bowl is radiocarbon dated to the eighth century BC at Trevelgue cliff castle (Nowakowski and Quinnell 2011, 7.7); this context also includes large shouldered jars. Both these types occur at Bodrifty (Dudley 1956). This data suggests for the mainland a LBAPW phase followed by an Early Iron Age phase with carinated bowls and large shouldered jars.

A structure at Bonfire Carn, Bryher, with indeterminate ceramics has two radiocarbon determinations relating to the eleventh to ninth centuries BC (Quinnell 1994; Ratcliffe and Straker 1996). Little Bay has a late phase with a radiocarbon date of the twelfth to ninth centuries, the ceramics an apparent continuation of the plain forms of the MBA, but some of the large straight-sided vessels might relate to LBAPW. Porth Killier (Quinnell, in prep a) in Sector B has a group of pits which provide closed deposits, unusual on Scilly. One of the pits had two radiocarbon determinations covering the eleventh to seventh centuries. The small assemblage comprises simple, slightly necked vessels, continuing forms present in the MBA. Dolphin Town (Quinnell 2009-10) has parts of two small carinated bowls in the upper part of the spread which yielded MBA radiocarbon determinations. Nornour has both small shouldered jars and carinated bowls, some of them in broad association with a radiocarbon determination covering the tenth to seventh centuries (Butcher 1978; Robinson 2007, 62). West Porth, Samson (Quinnell 1994; Ratcliffe and Straker 1996), has both shouldered jars and carinated bowls in an apparently single phase site with two C14 determinations covering the eighth to fifth centuries BC. Finally, LBAPW has been identified at Higher Town, St Agnes (Quinnell, in prep f). The data from these seven sites may represent successive Late Bronze Age and Early Iron Age ceramic phases but these are not currently very clearly defined. They would support the introduction of carinated bowls in the eighth century, the earliest century of the Iron Age as chronology for Britain is currently understood. Both the data from Scilly and the mainland currently suggest that carinated bowls were introduced here later than further east in Britain.

A number of domestic sites excavated by O'Neil are recorded by Robinson (2007, Appendix M) as having first millennium BC ceramics. Until this material has been examined by a modern ceramic expert no comment can be made as there is a long history of this material being misinterpreted.

No petrography was carried out for Bonfire Carn or West Porth. Porth Killier (Sector B) has a gabbroic bowl from a sealed pit. All other fabrics appear to be similar to the local granitic material of the Middle Bronze Age.

On the mainland a Plain Jar Group (PJG) with small and medium necked jars without decoration has recently been identified as the ceramic of the later Early Iron Age, covering the sixth to fourth centuries BC (Nowakowski and Quinnell 2011, 7.8; Quinnell 2011). Nothing comparable has been so far been identified on Scilly and ceramics for these centuries are currently unrecognised. The one exception is Halangy Porth (Ashbee 1983; Ratcliffe and Straker 1996). Re-examination of collections from sites with assemblages dating to the centuries either side of this period, especially the west area of Nornour excavated by Dudley (1968), might well show that it was present.

Stone

Stone artefacts from Scillonian settlements of this period are especially common (e.g. Butcher 1978, 95) but have received little detailed study. Artefact groups include bowl and saddle querns, bowls, troughs, whetstones, holed weights, bruising mullers, rubbing stones, pebble hammers, hammer stones and pivot stones.

Current knowledge has been summarised by Quinnell (in prep d). Because of the frequency of finds of pebbles, it is not easy to distinguish those which show signs of use or working and until the last few decades all but the most obvious artefacts were probably not recognised. Only the reports on Nornour (Butcher 1978), Little Bay (Neal 1983), Halangy Porth (Ashbee 1983), and Halangy Down (Ashbee 1996) have sufficient

detail for comparative discussion. Stone artefacts from the Isles of Scilly Electrification Project were all without contexts and have been briefly summarised (Ratcliffe 1991, 67-71); the small number of artefacts from the 1989-1993 Coastal Erosion Project has not so far been discussed as a group (Quinnell 1994).

Large quantities of stone artefacts were identified at Dolphin Town, Tresco (Taylor and Johns 2009-10), and Higher Town, St Agnes (Taylor and Johns, in prep). At present the consensual policy is for large stone artefacts such as quern stones to remain on the island where they were found. However, this can make analysis difficult and the question of the long-term storage and curation of such items needs to be reconsidered.

Pivot stones are fairly frequent finds on Scilly (e.g. Ratcliffe 1991, 67-8) and occurred at Little Bay (Neal 1983, 59), a site with a long occupation within the Bronze Age but with no subsequent use. While pivot stones are not uncommon, there appears to be no clear published account of how they actually functioned. The subject is one which would benefit from a more detailed examination of surviving pivot stones and from experimental work (Quinnell, in prep d).

Flint

The flintworking traditions of the full second millennium BC are cruder than those of the Mesolithic and Neolithic, although they are parts of the same long continuum. The scarcity of flint from Porth Killier, St Agnes, and the Early Iron Age site at West Porth, Samson, may suggest that during this period flint was no longer of such importance as in earlier prehistory (Quinnell, in prep e).

5.3.6 Subsistence

Occupation debris from settlements reveals that their inhabitants practised a mixed subsistence economy; as well as growing crops and raising stock, they fished, gathered shellfish and hunted wild animals and birds. Cereals such as naked barley and emmer wheat were cultivated, with pulses such as the Celtic, horse and horn bean (Ratcliffe and Johns 2003).

Plant remains

At Porth Killier, St Agnes, and Porthcressa, St Mary's, crops represented include emmer wheat and Celtic bean as well as naked and hulled barley; also two grains of oats, which could have been crop or weed. Many weeds were present: vetches, knotgrass, black bindweed, chickweed, small nettle and red goosefoot. The presence of ploughman's spikenard (*Inula conyza*) indicates that more calcareous soils had developed, perhaps in areas where shelly sand had accumulated; also the finding of corn spurrey (*Spergula arvensis*) at West Porth, Samson, indicates that some acidic soils had developed on granite, unless the presence of sand with shells had altered the balance. Clover (*Trifolium* sp.) and grasses point to open grassy areas or perhaps sand dunes in the vicinity. The presence of stinging nettles could indicate nutrient (phosphate) -rich conditions such as dung and domestic waste around settlements. The few seeds of sedge and rushes suggest collection of plants from damp conditions, perhaps for flooring or roofing materials. There is also evidence that a heathland flora had already developed over the granite by the Bronze Age. At Bonfire Carn, Bryher, this was well developed with gorse present as well as heath grass and ling. Charcoal was of gorse, broom, heather or ling and rose and bramble, all scrub or heath rather than woodland plants. At Porth Killier and West Porth, Samson as well as charred seeds there were others, dock and stinging nettle, that had been preserved by mineralisation probably caused by dumping of large numbers of limpet shells or perhaps phosphate-rich animal dung (Ratcliffe and Straker 1996, 11).

It is interesting to note that Bronze Age saddle querns and grinding mullers on Scilly are very large. These would have required considerable preparation and involved much effort to use. The heavy mullers from the Late Bronze Age settlement at Higher Town, would only grind with considerable pressure applied to their 8-10kg weight (Quinnell, in

prep g). The size of the equipment, both the mullers and the querns, suggests that considerable importance was attached to the preparation of grain, as does the deliberate decommissioning and deposition of these items. The importance of grain and its preparation could have been related to difficulties of production in Scillonian conditions and moreover to the rapidly diminishing area of good agricultural land available. In prehistoric Scilly grain might have been a rare and symbolically high status food source, as opposed to everyday fish and limpets.

Osteological faunal remains

Introduction

With the exception of the Par Beach calf's tooth (above, Section 4.5.4), the earliest records for the Islands date to the Middle Bronze Age. There are reports on material from Nornour (Turk 1967; 1968; 1971; 1973; 1978), Halangy Down, St Mary's (Locker 1996), Halangy Porth, St Mary's (Gray 1983), Little Bay, St Martin's (Locker 1983), Porth Killier, St Agnes (Turk 1991; Locker, forthcoming); Dolphin Town, Tresco (Ingrem 2009-10), and Higher Town, St Agnes (Ingrem, in prep).

Quality of the resource

Scillonian faunal remains were last summarised in Ratcliffe and Straker (1996). Since this authoritative work only a few new assemblages have come to light. There are few substantial and fully recorded assemblages and the faunal resource is generally small, often unquantified, and poorly dated. The largest quantified assemblages are derived from the Romano-British settlement on Halangy Down (Locker 1999; Number of Identified Specimens (NISP) 1651, excluding unidentified fragments) and East Porth (Locker 1983, Ratcliffe and Straker 1996; NISP 1242).

The assemblage from Nornour (Turk 1967; 1968; 1971; 1973; 1978) is also substantial but no NISP was published. The larger assemblages produced a quantity of metrical data, however aging information remains scant. Data relating to butchery, taphonomy, animal health, etc, has also been reported anecdotally by Turk and more systematically by Locker but overall the quality of the excavated resource remains poor. Sieving has been used in recent excavations but was not systematically applied in the past; as a result small bones and in particular smaller species (small mammals, fish and birds) are likely to be underrepresented. Whilst species lists for birds and fish are available and comprehensive, the relative contribution of these resources is extremely difficult to assess. The earliest remains of a domesticated cat in Britain were identified at Gussage All Saints and the individual on Nornour is the size of a larger domestic cat (O'Connor 2010).

Assemblage quantification

The assemblages all demonstrate a broad level of faunal exploitation, with birds, fish and marine and terrestrial mammals exploited. Only the Romano-British settlement on Halangy Down meets the criteria for detailed analysis of the relative abundance of main food animals (i.e. 300 NISP; Hambleton 1999) and the complexities of recording and quantifying the more diverse assemblages of bird and fish bone preclude all but the most general statements on the economic role of animals. At Nornour Turk indicated that while sheep were the most abundant species, seal were more common than cattle; however, this data remains unqualified. Whilst detailed information on introductions, extinctions and management is difficult to define given lack of precision, the following section draws on all available information to write a narrative on faunal history.

Faunal history

Terrestrial species include both domesticated and wild stock, with cattle, sheep, pig and red deer the most common species. There is evidence for the exploitation of marine resources with seal, cetacean and fish remains identified. The emphasis on terrestrial resources, with a minor but persistent component of marine resources, is common to many coastal and insular sites in later prehistory. Attempts to identify the contribution

of marine foods to the insular post-Mesolithic diet suggest that these make up less than 20% of the total protein input; however, marine animals may have been an important source of other foods such as fats and oils. At Nornour, Turk (1978) linked the high proportion of seal bones, in particular their burning, to a reliance on seal blubber. Seals, mostly grey seals, were probably hunted during the autumn, when they come ashore to breed, whilst the sparse evidence for cetaceans, mostly smaller dolphins, suggests the occasional use of stranded animals, although they could have been actively hunted. In the past, as today, the use of boats to move between the islands would have been necessary and seafaring a way of life, providing plenty of opportunity for fishing, birding and the procurement of marine mammals.

In addition to the main food animals, a few other terrestrial species are present on the islands by this time. There are a few canid remains (Locker refers to fox-size animals) and deer bones but these are insufficiently characterised to argue for local breeding populations. Turk remained convinced of the presence of an early local deer population in the Bronze Age and identified some smaller red deer (Turk 1978, 100) as providing evidence of an indigenous population of great antiquity and possible evidence for the presence of roe deer (Turk 1971, 94). There is strong evidence for the translocation of deer to the Scottish islands from the Neolithic onwards (Mulville 2010) although they do not arrive in Ireland until the Bronze Age. The recent evidence for the introduction of fox to the Orkney Isles (Fairnell and Barrett 2007) may provide a clue as to what these small canids represent.

There are a few horse elements from Porth Killier (Turk 1991) and Nornour (Turk 1978). The presence of horse in the Bronze Age is of interest; this species is rarely found on British Bronze Age sites and this material would benefit from revisiting and dating. In general, the low diversity of terrestrial species reflects both the size of the landmass and the small size or of the recovered assemblages; for example, prior to the major excavations on the Uists, red deer populations were thought to have never existed and many rarer species (e.g. roe deer, badger, pine martin etc) were unrecorded.

The first substantial evidence for Scillonian faunal exploitation in the abundant Later Bronze Age assemblages fits into the general British pattern of insular exploitation, with a range of species present. Wild food procurement would have involved hunting, trapping and fishing to procure marine mammals, fish and birds, the collection of littoral resources (crustacea, mollusca, etc) and bird eggs. Hunting would have extended to any endemic herds of deer, although careful management would have been required to maintain herds on these small islands, despite any larger mass resulting from lower sea levels. The evidence for domestic stock management is somewhat sparse. Aging evidence is restricted to Halangy and Nornour, and with only older cattle and younger lambs noted, the assemblages remain too small to allow detailed reconstructions of any changes over time. The Scottish islands provide significant evidence for a high level of cattle neonatal mortality. This has been variously interpreted as a specialist dairy economy or as problems with stock rearing associated with the marginal climate. As such, detailed analysis of the Scillonian assemblages with their milder climate and much longer growing season would be of significant research potential to examine the effect of the environment on husbandry decisions in prehistory. Additionally, recent insular research has focused on mapping ecosystem dynamics, understanding food and foddering of livestock and understanding the impact of small island environments on animal size and genetic diversity. For all these questions the Isles of Scilly fauna have a pivotal role to play, and the analysis of faunal assemblages, human and faunal stable isotopes and pottery residues from the island assemblages forms part of the NERC Diversification and Sustainability in Ancient Coastal Communities: The Role of Marine Resources (DISARMR) research project (Evershed and Mulville).

The only indicators of Scillonian stock characteristics derive from the metrical data; both Turk and Locker identify stock that is smaller than contemporary mainland animals

(Locker 1983, 19). Locker found the sheep to be a similar size to the Shetland breed and Turk described the cattle as small and the pig as long-legged. This and the sparse data for other species - cat, dog and deer - require more research and need to be compared with the contemporary substantial metrical datasets now available (e.g. at the ADS).

The role of animals in prehistory is often expressed in their non-economic contexts. On Scottish islands articulated groups, heads or repeating elements are found deposited within tombs, houses, ditches and pits, and reflect mainland practise. The Isles of Scilly are unusual in that no articulated groups of animals have been recovered (apart from the single third century AD cat at Halangy Down). This may reflect the timing and nature of the excavations; for example, late Bronze and Iron Age material in the Hebrides is typified by under floor deposits and few Scillonian houses have been fully or recently excavated.

Shell

Limpet shells, often in large quantities, are found on most settlement sites in Scilly, from the prehistoric to the post-medieval period (Ratcliffe and Straker, 1996). There are two published studies of limpet shells, which usually make up the bulk of any domestic midden – Halangy Down, St Mary’s (Townsend 1967), and Samson (Mason 1984) – and two unpublished studies, Porth Killier, St Agnes (Light, forthcoming), and Higher Town, St Agnes (Law, in prep).

Evidence from Porth Killier suggests that heavy exploitation of marine resources took place in the Bronze Age. The majority of shells had the morphology associated with middle to lower shore habitats where limpets are more abundant, as well as being apparently tastier than upper shore specimens. It has been estimated that 400 limpets would be need to provide one person with enough kilocalories for one day and that 31,360 limpets would be needed to provide the calorific equivalent of one red deer carcass (Bailey 1978). Even for an extensive Danish shell midden of 2000m³, containing tens of millions of shells, it was shown that based on length of accumulation time and base area of the mound, which gives an estimated population size (Cook and Treganza 1950), for a community of 39 people, the shellfood contribution to the diet would be 1.8%, and for 25 people 2.7%. This suggests that in general shellfish were treated as a small but constant and reliable source of fresh protein to supplement diets (*cf* Light, forthcoming).

It has been suggested that limpets were used as fishing bait rather than food (Ashbee 1974; Turk 1984), but if this were the case why were limpets transported from the shore to inland locations and even the tops of hills? Although limpets have been valued in the past for bait, other options are considered more effective: mussels, marine worms and shore crabs; with the exception of mussels, these resources and more would have been available to early Scillonians (*cf* Light, forthcoming).

Authors writing on the archaeology of Scilly mention the vast numbers of limpets, estimated as 110,000 in one midden (Ashbee 1974). Excavation has revealed quantities of rotted shells which suggest that limpet shells may have been used for soil enrichment. In view of the large numbers present at Porth Killier and at other sites in Scilly (e.g. Mason and Hayton 1977) it seems likely that limpets at least occasionally formed part of the diet. The value of a foodstuff such as limpets lies in the reliability of the resource and ease of exploitation when more desirable sources of protein might be in short supply (*cf* Light, forthcoming).

5.3.7 Transport

There is no archaeological evidence of boats of any type from this period in Scilly; indeed there is virtually no primary evidence of sea-going craft from Britain. However, a relatively large number of craft (log and plank boats) have been found in rivers, lakes and estuaries in Britain (Ransley *et al* 2011). Collections of Bronze Age artefacts found in the sea at Salcombe and Dover may be indicative of Bronze Age shipwrecks.

A rim sherd of coarse Bronze Age pottery with a collection of incised lines on its outer face was found during excavations at Higher Town, St Agnes in 2009. These lines were drawn prior to the firing of the pot and have been interpreted by some as depicting a boat or ship with a sail, although the nature of the incised lines (Fig 5.7) is such that other interpretations are possible. If this is a Bronze Age depiction of a boat with a sail it is of international importance as there is no evidence of Bronze Age sails from Europe (Thomas 2010; Taylor and Johns in prep).

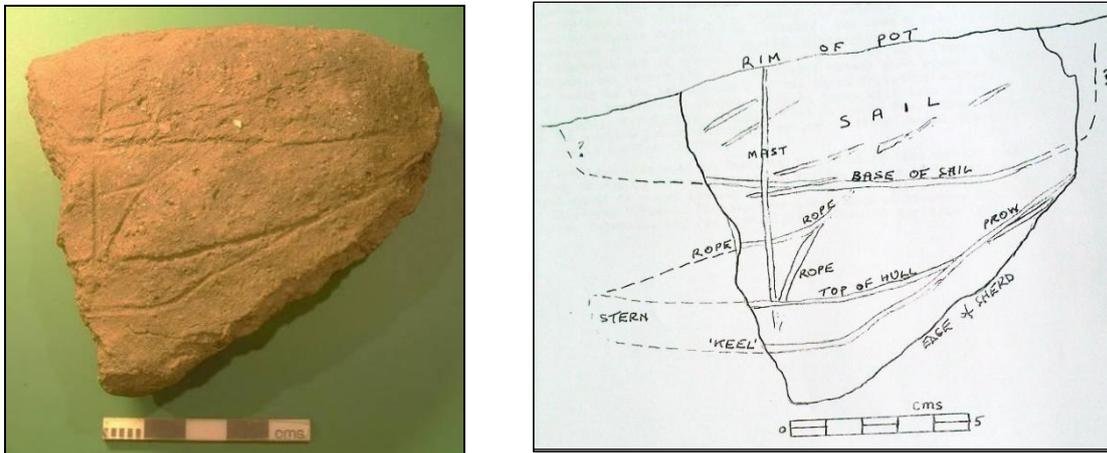


Fig 5.7 The St Agnes 'boatsherd': (left) a photograph of the outer face of the sherd and (right) an interpretation of the lines (Carl Thorpe).

5.3.8 Social relations

During the Early Bronze Age, social and kinship relations were materially manifested and played out through communal burial within entrance graves and the placement of individual burials beneath cairns. During the Later Bronze Age emphasis shifts from monuments to settlements, and social and kinship relations were played out through the continued occupation of a single locale (settlement). In other words, the social significance of burial monuments is transferred to the realm of the domestic: houses metaphorically become monuments. The significance placed upon the remains of ancestors and their places of interment is replaced by a new emphasis upon the places where ancestors once inhabited.

It is interesting to note that between the Later Bronze Age and the Later Iron Age archaeological evidence for burial practices disappears from the archaeological record. It must be presumed that during this period the disposal of the dead was carried out in a way (such as excarnation) that rendered them archaeologically invisible.

5.3.9 Ritual and religion

It is likely that cairns continued to be constructed and reused during the Later Bronze Age and that some of the cairns that comprise the large cairnfields located around the periphery of the islands might date to this period. However, as no excavation has taken place within one of these cairnfields, it is not possible to prove this interpretation.

A further method of burial that may be assigned to this period is suggested by Hencken (1952, 29), who hints at the existence of a Bronze Age urnfield when he refers to 'huge quantities of undecorated pots found and subsequently destroyed on the north-western side of Samson Hill, Bryher'; he also states that a 'further similar cemetery was found by Crawford on St Mary's' (1928, 29). Unfortunately, no further details of these 'urnfields' are available and the character and location of the pottery retrieved is unknown.

5.4 The Iron Age (c 800 BC – AD 43)

Few iron objects survive in the acid soils of Cornwall and Scilly, and pottery and the introduction of hillforts have traditionally been used to identify the beginnings of the local Iron Age. More recent evidence has made the division between the Bronze and Iron Ages less clear, since Cornish pottery formerly regarded as Early Iron Age could also belong to the Later Bronze Age and hillforts elsewhere in Britain are now known to have been constructed in that period (Quinnell 1986, 112-113).

5.4.1 Chronology

The majority of radiocarbon determinations for the Iron Age are from environmental samples. There are two Early Iron Age dates from a house exposed in the cliff face at West Porth, Samson, and two more from a house exposed in the cliff face at Halangy Porth, St Mary's (Ashbee 1983a, 22; Ratcliffe and Straker 1996, 67, 89). There are two Late Iron Age radiocarbon determinations from human bone from the Bryher sword and mirror burial (Marshall 2002-3, 23).

5.4.2 Landscape

The rate of loss of intertidal area increased in the Iron Age but the rate of loss of land declined significantly from what it had been during the Bronze Age and slowed continually after that, such that from the Iron Age onwards land area was very similar to that of today (*ibid*).

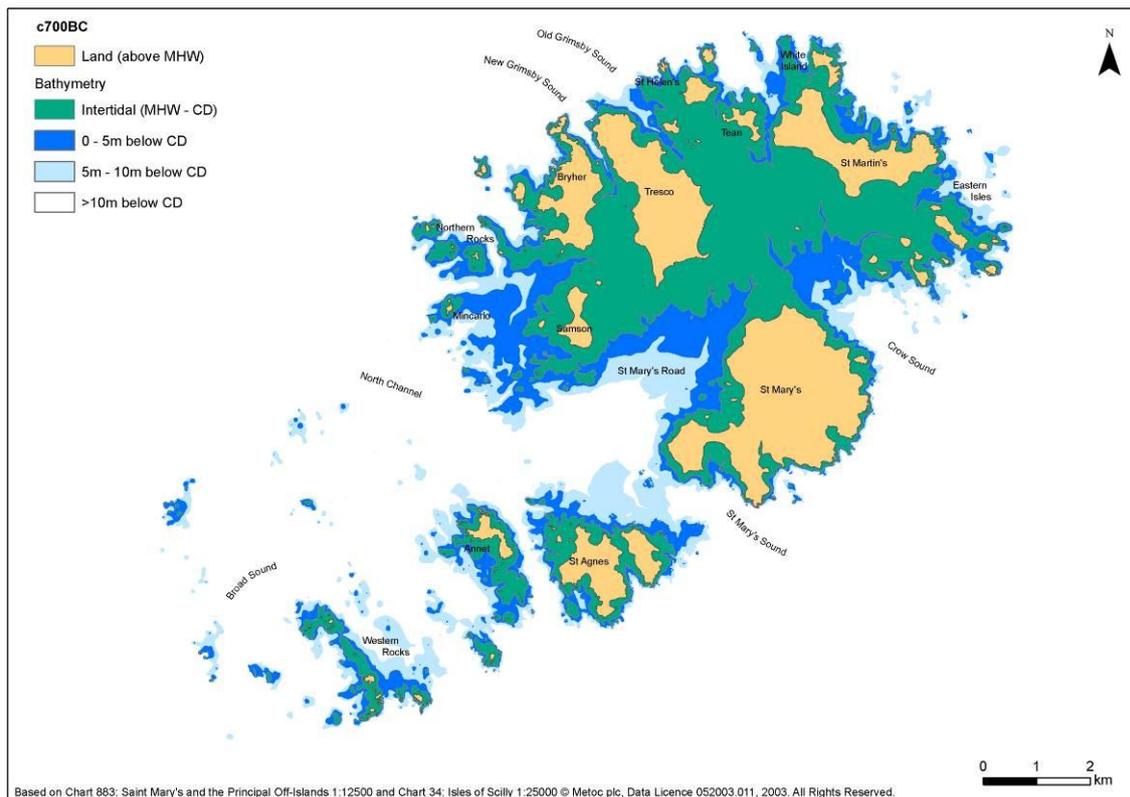


Fig 5.8 Inferred submergence model, c700 BC (based on data from the Lyonesse Project (Charman et al 2012); all details as for Fig 3.3

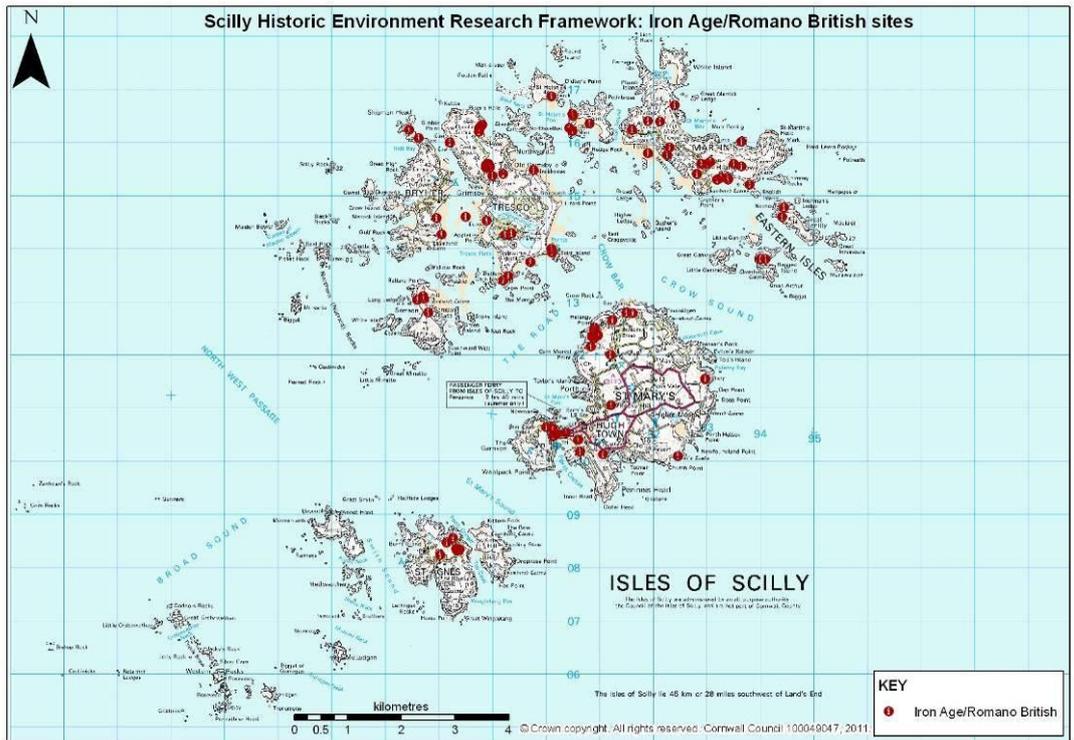


Fig 5.9 Distribution of Iron Age and Romano-British sites recorded in the Cornwall and Scilly HER



Fig 5.10 A reconstruction of the Iron Age/Romano-British settlement on Samson Hill, Bryher (reproduced by kind permission of Jane Stanley)

5.4.3 Settlement

The overall picture is one of continuity of earlier traditions throughout most of the first millennium BC but with some changes occurring after 500 BC. People still lived in open settlements of oval or circular houses (and in some cases perhaps the same houses themselves), farmed small rectilinear fields, used mainly stone tools and similar types of pottery. One of the most distinctive differences between Scilly and mainland Cornwall is the absence in Scilly of the 'rounds', or enclosed farming settlements, which dominated the Cornish landscape in the Late Iron Age and Romano-British period (cf Nowakowski and Johns forthcoming).

Excavated hut settlements at Halangy Down, St Mary's and Nornour indicate continuity between the Iron Age and Romano-British period in Scilly (Dudley 1967; Butcher 1978; Ashbee 1996). Though few other sites are securely dated it is likely that many of the recorded huts and field systems can be assigned to these periods.

The remains of an Iron Age - Romano-British settlement were investigated at Hillside Farm, Bryher, in the vicinity of the sword and mirror cist burial (Fig 5.10; Johns 2002-3). Remains included a stone-walled building, either a byre or shared animal - human habitation, on top of an approximately 10m wide occupation terrace. This was defined to the north (downslope) by a substantial stony lynchet and a settlement boundary made up of a 1m wide, double-faced stone wall with a dense, crushed, limpet midden infill, a construction method noted in other prehistoric Scillonian structures. After falling out of use, the building was infilled with domestic rubbish in the form of a sequence of limpet middens and redeposited burnt material. Another substantial stone building, c 8m in overall diameter, was suggested by geophysical survey results, and an evaluation trench showed this also became a repository for domestic rubbish after its abandonment. An auger survey revealed that midden deposits extend over an area of some 450 sq m in the vicinity of this settlement.

5.4.4 Field systems

One field system securely dated to the Iron Age, 382 cal BC – cal AD 2 (HAR-3485 2140 ±70), is the site at Bar Point, St Mary's, investigated in 1979-80 in advance of sand extraction (Evans 1984, 7-32). Fowler and Thomas (1979, 186) had carried out a preliminary survey which suggested a rectilinear pattern of narrow fields c 16m wide, and in one case only 13m wide, and 20m long. There were two types of boundary, those cutting across the contour were stone banks and those running along the contour were stone banks set on lynchets, which were staggered in contrast to the continuous cross-contour boundaries. There was evidence of cultivation but no trace of cultivation marks, except some shallow grooves in the base of one of the trenches. Phosphate analysis suggested that some fields were used to keep animals in and others were for arable cultivation. Although Fowler and Thomas had recorded one boundary still standing to a height of c 1.5m the investigated boundaries were of slighter construction.

The curvilinear pattern of fields surrounding the cist burials and Iron Age - Romano-British settlement at Hillside Farm, Bryher, is also likely to date from the Iron Age. It includes rectilinear and irregular stone-walled fields with lynchets along the contours. Most of the farmland here retained the ancient pattern until the end of the nineteenth century but had been sub-divided into linear bulb strips by the time of the 1908 Ordnance Survey 25in map (Johns 2002-3).

5.4.5 Cliff castles

There are the remains of two cliff castles in Scilly: Giant's Castle on St Mary's (Fig 5.11) and Shipman Head on Bryher, with possibly a third on Burnt Hill on St Martin's. Ashbee (1974 209-15, fig 46) suggests there were more such sites at Kallimay Point, St Agnes; The Hugh and Little Bay / Porth Seal, St Mary's, Blockhouse Point, Treco, and Pernagie Point, St Martin's, and also points out that the term 'cliff castles', was likely to have been coined by Borlase during his 1752 visit to Scilly.

Such promontory fortifications are currently interpreted as socio-economic or ritual centres rather than simply defensive strongholds (e.g. Herring 1994). The three cliff castles on Scilly lie roughly equidistant from each other, on the edges of the island group and it is tempting to suggest that they reflect tribal divisions which existed in Scillonian society at this time.

There are no definite examples of hillforts in Scilly, although the Civil War battery on Mount Todden, St Mary's, may have re-used the site of such a monument.



Fig 5.11 Giant's Castle on St Mary's in the early twentieth century (© Gibson Collection)

5.4.6 The material world

Metalwork

There was virtually no evidence for Iron Age metalwork in Scilly before the discovery of the Bryher sword and mirror cist burial in 1999 (Fig 5.12). Within the cist were the fragmentary remains of a crouched human skeleton. In addition to a sword, which survived within a bronze scabbard, the grave goods included a mirror, shield fittings, a sword belt ring, a brooch and a spiral ring (all of copper alloy), together with a shattered tin object. There was also evidence for the grave having contained a sheepskin or fleece and woven textile incorporating goat and other animal hairs. This is the only known Iron Age grave to contain both a sword and mirror, raising interesting questions as to the gender significance of both these grave goods. The unique combination of metal objects will continue to be central to future discussions concerning the development of British Iron Age metalwork.

A long bone fragment from the burial was radiocarbon dated to 193-48 cal BC (OxA-12095, 2098 ±27); the metalwork typology narrows this range to the first half of the first century BC. The dates indicate that the Bryher mirror is the earliest known British decorated bronze mirror and has important national implications for the study of the development of insular Celtic Art in Britain (Johns 2002-3). The discovery has also led

to a reappraisal of British decorated Bronze mirrors; rather than simply being vanity aids buried with moderately wealthy females they have been reinterpreted as having symbolic properties associated with the translation of the soul to the 'Otherworld' (*ibid*).

The only other Iron Age ring - a bronze spiral finger or toe ring - was found on the spoil heap during the 1949 Porthcressa cist-grave excavations (Ashbee 1983, 120-1).



Fig 5.12 The Bryher sword and mirror (English Heritage)

Pottery

Middle and Late Iron Age

The South Western Decorated (SWD) ceramic style is now well established for the third to first centuries BC on the mainland, with a little initial material in the late fourth (Nowakowski and Quinnell 2011, 7.9; Quinnell 2011). This style appears to have been used at similar dates on Scilly. The main assemblage comes from the west area of Nornour (Dudley 1968). Small groups come from Cliff Fields, Tresco, and from Porth Killier (Quinnell 1991) and appear to be present in midden deposits adjacent to the cist cemetery at Porthcressa (Ashbee 1954). A few plain sherds from contexts associated with the cist burial at Hillside Farm, Bryher, are likely to be of this style, with associated radiocarbon dates indicating the second or first centuries BC (Quinnell 2002-3 a). No other sites have produced radiocarbon determinations. Henrietta Quinnell can not confirm the date of the SWD sherds suggested by Robinson (2007, 70) from O'Neil's unpublished excavation on Little Arthur. Neither can she comment on sherds reported from Giant's Castle (O'Neil 1949c, 9).

The house associated with Early - Middle Bronze Age ceramics at Halangy Porth was re-used in the Iron Age. A radiocarbon date covers the fifth to second centuries BC (Ratcliffe and Straker 1996, 89). Pottery published by Ashbee (1983a, fig 9) can be re-interpreted as a variant of SWD (no 3) and as large shouldered jars, probably to be seen as variants of the Plain Jar Group, just possibly from even earlier in the Iron Age. Ashbee (*ibid*) comments that similar sherds to those illustrated were present in the material previously excavated from the site by Gray. A second house, immediately adjacent to that discussed, was located in 1990 (Ratcliffe and Straker 1996, 89). This produced plain sherds of either PJG or SWD type and radiocarbon determinations

covering the seventh to fourth centuries and the fourth and third centuries from different hearth levels (Quinnell 1991). It should be made clear that the extensive settlement on Halangy Down above the Porth produced no Iron Age material, an observation based by Henrietta Quinnell on Ashbee's (1996) site report.

Petrographic work by Roger Taylor on the Bryher cist site identified fine granitic fabrics of a type almost certainly made on the Islands. A rapid scan of some of the Nornour material by Henrietta Quinnell in 2007 identified SWD sherd P57 as gabbroic (Dudley 1968, fig 6).

Recent work on the mainland has now established a start date for Late Iron Age Cordoned Ware in the later second century BC (Quinnell 2011; Quinnell in Gossip, forthcoming b). The style overlapped with SWD for about a century and continued, with a few changes, until the second century AD. On Scilly Cordoned Ware is found at Nornour, both in the west area and also in the top of some house infills in the east area. It was also found with SWD at Cliff Fields, Tresco (Quinnell 1991). Other sites with Cordoned Ware almost certainly date after the Roman conquest and are discussed below. Rapid examination of the Nornour assemblage by Henrietta Quinnell in 2007 identified no 60 (Dudley 1968, fig 7) as gabbroic. Most of the material appears to be made in local granitic fabrics. However, D F Williams identifies the fabric of bowl no 19 (Butcher 1978, fig 25) to be of a distinctive hard fabric containing only quartz and mica, which was probably not sourced in the Islands. This bowl belongs to Threipland's (1956) Type G, probably a drinking vessel. (The interpretation of this vessel by Robinson (2007, 62) as a Late Bronze Age carinated bowl is unlikely: this type of carinated bowl does not occur in the south west and the vessel is similar in all respects to Cordoned Ware Type G.)

Flint and stone

No settlement site of Iron Age or Roman date on Scilly is entirely without flint, but site formation processes on these settlements are not of the kind that allows a clear assessment of the likelihood of redeposition from earlier periods (*cf* Quinnell 2002-3b). There was extensive continued use of local stonework for tools similar to those described above in section 5.3.5.3.

5.4.7 Subsistence

There are few sites dated solely to the Iron Age: Hillside Farm, Bryher (Ingrem 2002-3), and the site on May's Hill, St Martin's (Turk 1984), continue into the Romano-British period.

Plant remains

Evidence for Iron Age crop husbandry is still very limited for Scilly but emmer and barley, including the naked form, continued as cultigens. At present there is no evidence for the cultivation of spelt wheat from Bronze Age or Iron Age sites, unlike other sites in southern Britain, and naked barley does not form part of these mainland assemblages. A limited range of arable weeds includes the acid-loving corn spurrey, fat hen, ribwort plantain and bedstraw (Ratcliffe and Straker 1996, 12).

Several shallow parallel grooves, interpreted as possible ploughmarks were found at the base of the soil during the excavations at Bar Point, St Mary's (Evans 1984, 25).

Animal remains

The potential of limpet middens for the recovery of food remains, particularly bird, fish and mammal bone and shell, is well known in Scilly at sites such as Porth Killier, Porthcressa and Tean (Ratcliffe and Straker 1996). The bone assemblages from the Hillside Farm middens provided the most useful information on diet, farming practice and exploitation of wild resources, although interpretation was limited by the small sample size. Breeding of sheep and/or goats could be demonstrated by the presence of neonatal bones and cattle and pigs were also kept. A wide range of birds and fish were

collected for food, interpreted as low-risk exploitation of inshore seabirds and fish. The finding of mature red sea bream, usually regarded as typical of offshore waters, raises the question of where this species was caught. The Scillonian batholith is surrounded by deep water, however, and it is likely that the former inhabitants of Scilly were able to catch a range of fish without the need to fish far offshore (Straker 2002-3, 58-60).

Animal hoof-prints dating to the Iron Age were found on a trackway during the excavations at Bar Point, St Mary's (Evans 1984, 23-25). These were of two main types, cloven and uncloven. The uncloven were probably those of ponies or small horses. The cloven hoof-prints were of several sizes, some being large cattle and some smaller and probably young cattle. Some of the very small ones may have been those of sheep or goats.

5.4.8 Transport

Ruts were found in the trackway revealed during the excavations at Bar Point, St Mary's (Evans 1984, 23-25). These were 50-100mm wide and 30mm deep with sloping sides and flat bottoms. It is possible that these were caused by 'slide cars' being pulled uphill by ponies whose hoof-prints had also been found.

There is no archaeological evidence of boats of any type from this period in Scilly. Two iron anchors have been found in Britain from this period, one complete with chain. They could be of Mediterranean origin but nevertheless are indicative of increased seafaring activity. Documentary and representational evidence shows increasingly sophisticated sea-going craft in this period in Europe, the gold model boat found at Broighter in Northern Ireland in 1896, for example, has a mast, oars and a yardarm. It is perhaps similar to the Veneti craft described by Caesar (Weatherhill 2005), although there is some debate as to whether the model shows a hide or plank boat (Ransley *et al* 2011).

The large oak trees required for plank boats may have become less available as woodland was cleared, and it is possible that the hide-covered boat, similar to the *currach*, comes into its own as the seagoing craft of choice in this period. Their lightness of construction, an advantage in relation to buoyancy and beaching, means that their survival in archaeological deposits is significantly poorer than that of plank boats (McGrail 2004).

5.4.9 Ritual and burial

Burial under cairns may have continued throughout the Bronze Age and Early Iron Age until the introduction of Porthcressa-type cist graves in the Late Iron Age (Thomas 1985, 133), although the majority of the dead were probably disposed of in some way, such as excarnation, that has not left any traces in the archaeological record,

Porthcressa-type cist graves

The Late Iron age and Romano-British south-western cist-burial tradition was identified through the chance discovery and excavation of a number of small cemeteries and isolated burials around the coasts of Cornwall and the Isles of Scilly, with a couple of examples in Devon, and was possibly the normative burial rite of the Dumnonii (*cf* Thomas 1966, 77). In Scilly these burials are known as Porthcressa-type cist graves after the type site on St Mary's where Paul Ashbee investigated ten cists and an uncisted burial in 1949-50 (Ashbee 1954; 1979).

Approximately 36 of these cist graves have been discovered at twelve sites in Scilly: Par Beach, St Martin's (Crawford 1928; O'Neil *nd a and c*); Old Man, Tean (Tebbutt 1934); Porthcressa, St Mary's (Ashbee 1954, 1979); Poynter's Garden, St Mary's (Dudley 1960-1); Green Bay, Bryher (Thomas 1977); the east side of Porthcressa Bay, St Mary's (Ratcliffe 1999); Halangy Porth, St Mary's (Ratcliffe 1996, 23); East Porth, Samson (Ratcliffe and Sharpe 1990); Lawrence Brow, St Martin's (Ratcliffe 1993, 12); Hillside Farm, Bryher (Johns 2002-3), Toll's Porth, St Mary's (Ratcliffe 1994, 13-14); and Lunnon Farm, St Mary's (Butcher 2002; Johns *et al* 2011). With the exception of the Lunnon Farm cists, all were in low-lying locations, below, just above or slightly

inland of the modern shoreline, having been revealed by coastal erosion, cultivation or modern development.



Fig 5.13 The Iron Age sword and mirror cist burial at Hillside Farm before excavation in October 1999 (photo: Cornwall Council)

Generally oval or rectangular in plan, and occasionally coffin- or D-shaped, the cists are set in grave pits and constructed of stone slabs placed on edge, coursed walling, or a combination of both building techniques. They are covered by stone slabs set at right angles to the main axis. Cist dimensions range from 0.9m to 1.6m in length, 0.5m to 1.0m in width, and 0.2m to 0.8m in depth. The majority are aligned north – south.

Where skeletal remains have survived in the acid soils, they represent the remains of crouched inhumation burials (with the body lying on its side). Grave goods often accompany these and include bronze brooches, pottery vessels, glass beads and, in one instance, an iron pin. The frequent occurrence of brooches suggests that they played a special role in the funerary rite and may have been used to hold together a shroud or, perhaps, everyday costume.

The sword and mirror cist burial at Hillside Farm is the richest south-western cist grave yet to be discovered (Fig 5.13). The sword and mirror link it to the wider British warrior and mirror burial traditions; these types of burial, which share similar cultural associations and distribution patterns, crosscut local burial traditions where they exist (Johns 2002-3).

Typological dates for most of the brooches and pottery recovered from the Porthcressa cemetery post-date the end of the first century AD. This led Ashbee to consider the graves to be wholly Roman in date and surmise that 'refugees' from the Cornish mainland may have imported the cist-burial tradition to Scilly sometime after the Roman conquest (Ashbee 1979, 78; 1986, 207). The radiocarbon determination and finds from the Hillside Farm cist showed that such cists originated in the Iron Age.

Statue menhir

An interesting decorated standing stone, found in a field wall on Chapel Down, St Martin's, which represents the face and upper torso of an anthropomorphic figure (Ratcliffe and Parkes 1989b, 259-60; Fig 5.14). The base of this stone has been broken

off from a larger stone that may once have stood upright upon the Down and it has been interpreted as a Romano-Celtic idol (Ashbee and Thomas 1990).



*Fig 5.14 The statue menhir from St Martin's
(© Rosemary Robertson)*

Fogou

In 2001 a fogou - an underground chamber-like passage - was discovered at Peninnis on St. Mary's. The curving passage is walled by granite slabs, roofed by five large capstones and is nearly five metres long, entered through a smaller low passage or 'creep'. Fogous were constructed during the later Iron Age and may have been used as safe refuges during raids, religious sanctuaries or cool storage areas for foodstuffs. Several are known in West Cornwall but this is the first to be discovered on Scilly.

5.5 Human osteological remains

The only Iron Age human bone from Scilly that has been analysed is from the Bryher sword and mirror burial (Mays et al 2002-3). Survival of bone was very poor and less than 150g of bone fragments were present; these were mainly long-bone and skull fragments. The surfaces of the long-bone fragments were heavily eroded; the skull fragments a little less so. The only long-bone fragment that was identifiable to skeletal element came from the distal part of a femur shaft. Tooth crown fragments were preserved, although only the enamel component survived; there was no dentine.

The burial was clearly that of an adult. Examination of the dental remains indicated a mandibular first molar crown at Brothwell's (1981, fig 3.90) wear stage 3, and a maxillary third molar crown at wear stage 2. This suggests an age at death of approximately 20-25 years.

It was impossible to identify the sex of the individual from bone morphology but an attempt was made to achieve this using ancient DNA; the results obtained proved to be non-diagnostic, probably due to poor survival of DNA, and it was therefore not possible to identify the sex of the individual.

Despite the severe diagenesis seen in the present case, analyses for nitrogen and carbon stable isotopes from long-bone fragments were successful. These provide evidence regarding protein sources in human diets. Since collagen turnover is slow, information is on long-term average diets.

In a north-west European context, carbon stable isotope values give an indication of the relative contribution of marine foods to dietary protein; the results indicated that the Bryher person obtained only a small proportion (perhaps a quarter or less) of his or her dietary protein from seafoods, despite the island location.

5.6 Scientific dating

5.6.1 Radiocarbon dates

The 61 radiocarbon determinations listed below in Figure 5.15 below have all been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period to which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they appear.

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
HAR-239	3260 ±280	2300-840	Nornour	Charcoal (oak & larch) from lower midden in passage between houses 1 & 3.	Butcher 1978, 29-112
HAR-1715	3190 ±110	1741-1133	Little Bay, St Martin's	Charcoal from hearth F in House 2.	Neal 1983
OxA-3647	3220 ±70	1682-1323	Porth Killier, St Agnes	Charred seeds (<i>Hordeum sp.</i>) from layer 14 at top of midden in house exposed in cliff-section	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1995, 421-2
GU-5413	3250 ±50	1636-1422	Porthcressa, St Mary's	Shell (<i>Patella Vulgata</i>) from midden 3 in house exposed in cliff-face	Ratcliffe & Straker 1996, 77
OxA-26370	3276 ±29	1626-1423	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
HAR-3694	3100 ±100	1608-1056	Higher Moors, St Mary's	?Peat.	Scaife 1984
OxA-3648	3170 ±65	1610-1301	Porth Killier, St Agnes	Charred seeds (<i>Hordeum sp.</i>) from layer 14 at base of midden in house exposed in cliff-section	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1995, 421-2
OxA-26367	3246 ±30	1609-1447	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-4701	3165 ±55	1605-1304	Porthcressa, St Mary's	Charcoal (Rosaceae) from layer 3 midden house exposed in cliff-face	Ratcliffe & Straker 1996, 77; <i>Archaeometry</i> 1995, 421-2
OxA-26368	3215 ±28	1531-1422	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-26365	3157 ±29	1498-1391	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-26366	3145 ±29	1496-1323	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-26371	3146 ±29	1496-1323	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
HAR-457	2990 ±100	1442-934	Nornour	Charcoal bulk sample from midden in the lower fill of Building 9.	Butcher 1978, 29-112

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
SUERC-28999	3090 ±30	1430-1270	Crab's Ledge, Tresco	Lowermost sample with high saltmarsh pollen content. Bulk organic sediment (humic acid fraction)	Marshall et al 2012
HAR-460	3020 ±70	1426-1054	Nornour	Shell from midden in the lower fill of House 9	Butcher 1978, 29-112
Wk-19092	3045 ±42	1416-1133	Dolphin Town, Tresco	Potsherd residue, layer 16 in house 13	Taylor & Johns, 2009-10
OxA-26369	3066 ±28	1411-1266	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
Wk-5691	2973 ±73	1405-1006	Porth Killier, St Agnes	Fill (150) in cist [163] below cairn [154].	Ratcliffe <i>et al</i> forthcoming
OxA-4700	2936 ±55	1370-978	Porth Killier, St Agnes	Charcoal (<i>Calluna</i>) from layer 5	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1995, 421-2
OxA-22580	2953 ±39	1310-1020	Crab's Ledge, Tresco	Below OSL sample. Bulk unidentified plant macrofossils	Marshall et al 2012
Wk -5687	2841 ±68	1249-838	Porth Killier, St Agnes	Pit [50]	Ratcliffe <i>et al</i> forthcoming
OxA-22578	2896 ±26	1200-1000	Crab's Ledge, Tresco	Uppermost sample with high saltmarsh pollen content. Bulk unidentified plant macrofossils	Marshall <i>et al</i> 2012
HAR-1726	2780±80	1191-799	Little Bay, St Martin's	Charcoal from hearth F in House 2	Neal 1983
OxA-5290	2755±60	1043-804	Bonfire Carn, Bryher	Charcoal (gorse broom) from layer 5 in house exposed in cliff-face	Ratcliffe & Straker 1996, 80
OxA-22579	2824 ±29	1060-900	Crab's Ledge, Tresco	Above OSL sample. Bulk unidentified plant macrofossils	Marshall <i>et al</i> 2012
OxA-5290	2755 ±65	1056-799	Bonfire Carn	Charcoal (Ericaceae from layer 5 as above)	Ratcliffe & Straker 1996, 80
Wk-5689	2794 ±74	1191-806	Porth Killier, St Agnes	Hut [21]. C14 dates with inconsistent stratigraphy	Ratcliffe <i>et al</i> , forthcoming
SUERC-38232	3005 ±30	1322-1153	Higher Town, St Agnes	Carbon residue	Taylor & Johns, in prep
HAR-240	2690 ±90	1114-551	Nornour	Charcoal from fill of hearth 2 (NN71) from house 5	Butcher 1978, 66
SUERC-1046-895	2805 ±30	1046-895	Higher Town, St Agnes	Grain: wheat	Taylor & Johns, in prep
SUERC-34962	2745 ±35	976-814	Higher Town, St Agnes	Carbon residue	Taylor & Johns, in prep
Wk -5686	2641 ±718	976-544	Porth Killier, St Agnes	Pit [50].	Ratcliffe <i>et al</i> , forthcoming
BETA-301603	2720 ±30	920-810	Lower Moors, St Mary's	Decayed plant material	Perez forthcoming

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
OxA-3651	2570 ±65	841-417	West Porth, Samson	Charred seeds (<i>Hordeum sativum</i>) from layer 8 in house exposed in cliff-section	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1994, 363
SUERC-29002	2620 ±30	830-770	Bathinghouse Porth, Tresco	Lowermost sample with high saltmarsh pollen. Bulk organic sediment (humic acid fraction)	Marshall <i>et al</i> 2012
OxA-3650	2545 ±65	814-417	West Porth, Samson	Charcoal (<i>Ulex sp.</i>) from layer 8 in house exposed in cliff-section	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1994, 363
HAR-3724	2540 ±80	815-412	Higher Moors, St Mary's	Peat	Scaife 1984
Wk-5688	2533 ±79	809-413	Porth Killier, St Agnes	Hut [21]	Ratcliffe <i>et al</i> , forthcoming
SUERC-39454	2560 ±38	806-735	Lower Moors, St Mary's	Peat	Perez forthcoming
SUERC-39453	2481 ±38	769-48	Lower Moors, St Mary's	Peat	Perez forthcoming
SUERC-29001	2465 ±30	770-410	Bathinghouse Porth, Tresco	Above OSL sample. Bulk organic sediment (humic acid fraction)	Marshall <i>et al</i> 2012
SUERC-29000	2435 ±30	760-400	Bathinghouse Porth, Tresco	Uppermost sample with high saltmarsh pollen. Bulk organic sediment (humic acid fraction)	Marshall <i>et al</i> 2012
HAR-3723	2360 ±60	753-234	Higher Moors, St Mary's	Peat	Scaife 1984
OxA-4697 (CALIB 4.1)	2390 ±50	752-387	Halangy Porth, St Mary's	Charcoal (<i>Ulmus/Rosacae/Calluna</i>) from layers (5) and (6) from hearth [23] in house exposed in cliff-face	Ratcliffe & Straker 1996, 103
HAR-1313	2260 ±90	726-53	Halangy Porth, St Mary's	Charcoal from entrance of house exposed in cliff-face	Ashbee 1983a, 22; <i>Radiocarbon</i> 1990, 65
GU-5059	2180 ±100	409 cal BC- AD 49	Crab's Ledge, Tresco	Column VI from basal 20mm of upper peat. Of limited value due to high deviation?	Ratcliffe & Straker 1996, 128
OxA-4696	2250 ±50	398-202	Halangy Porth, St Mary's	Charcoal (<i>Ulmus Prunus</i>) from layer (4) from hearth [23] in house exposed in cliff-face	Ratcliffe & Straker 1996, 103
OxA-12095	2098±27	193-48	Bryher sword & mirror cist burial	Human bone	Marshall 2002-3, 23
OxA-10255	2100 ±35	341-40	Bryher sword & mirror cist burial	Human bone	Marshall 2002-3, 23
GU-5057	1980 ±80	182 cal BC - AD 220	Crab's Ledge, Tresco	Sample 2 from basal 10mm of exposed peat	Ratcliffe & Straker 1996, 128
HAR-3483	2140 ±70	382 cal BC - cal AD 2	Bar Point, St Mary's	Charcoal from ditch alongside field boundary	Evans 1985

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
GU-5232	2140 ±60	372-42	Crab's Ledge, Tresco	Column VI from intertidal peat deposit	Ratcliffe & Straker 1996, 128
WK-5695	1940 ±130	351 cal BC – cal AD 385	Old Town Bay, St Mary's	Base of lower peat deposit. Of limited value due to high deviation?	Ratcliffe and Straker 1998
SUERC-32921	1980 ±30	180 cal BC – cal AD 10	Old Town Bay, St Mary's	Bulk: organic sediment including Phragmites stem & ?Monocot stem (humic fraction)	Marshall <i>et al</i> 2012
BETA-301601	2050 ±30	160 cal BC – cal AD 10	Lower Moors St Mary's	Decayed plant material	Perez forthcoming
GU-5056	1880 ±100	101 cal BC – AD 389	Par Beach, St Martin's	Sample 2 from top 10mm of intertidal peat	Ratcliffe & Straker 1996, 128. Of limited value due to high deviation?
BETA-301602	2000 ±30	50 cal BC – AD 60	Lower Moors St Mary's	Decayed plant material	Perez forthcoming
SUERC-32920	1980 ±30	50 cal BC – cal AD 80	Old Town Bay, St Mary's	Bulk: organic sediment including Phragmites stem & ?Monocot stem (humic acid fraction)	Marshall <i>et al</i> 2012
SUERC-38088	1965 ±35	50 cal BC – cal AD 130	Porth Coose, St Agnes	Humic acid, 22–23cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-39448	19563 ±38	Cal AD 1 – 94	Lower Moors St Mary's	Peat	Perez forthcoming

Fig 5.15 List of Later Bronze Age and Iron Age radiocarbon dates

5.6.2 OSL dating

Optically Stimulated Luminescence (OSL) dating was carried out on submarine and intertidal deposits recovered during the Lyonesse Project in 2010. Six Late Bronze Age and Iron Age OSL ages were obtained (Roberts 2012).

Location	Lab no.	Context	Material	OSL Age	Calibrated date (95% confidence)
Bathinghouse Porth, Tresco	161/LPTR3-1	12–14cm below surface of intertidal sand-peat	Quartz	2630 ±150	930–320 cal BC
Crab's Ledge, Tresco	161/LPTR1-1	0.08 ±0.005m down core	Quartz	3340 ±190 BP	1720–950 cal BC
Lower Moors, St Mary's	184/LM10-28-277	271–277cm down core	Quartz	3130 ±410	1530–710 cal BC
Lower Moors, St Mary's	184/LM10-28-161	161–165cm down core	Quartz	3000 ±370	1360–620 cal BC
Lower Moors, St Mary's	184/LM10-28-217	217–221cm down core	Quartz	3050 ±280	1320–76 cal BC
Crab's Ledge, Tresco	184/LPTR-4A	0.19m down core	Quartz	1890 ± 110 BP	110 cal BC–cal AD 340

Location	Lab no.	Context	Material	OSL Age	Calibrated date (95% confidence)
Bathinghouse Porth, Tresco	161/LPTR3-1	12–14cm below surface of intertidal sand-peat	Quartz	2630 ±150	930–320 cal BC
Crab's Ledge, Tresco	161/LPTR1-1	0.08 ±0.005m down core	Quartz	3340 ± 190 BP	1720–950 cal BC

Fig 5.16 List of Later Bronze Age and Iron Age OSL Ages expressed as years before AD 2010, rounded to the nearest 10 years

5.6.3 Magnetic dates

Archaeomagnetism provides a date of last use for any feature that has been subjected to intensive heating so can provide a date of last use for settlement or industrial activity. Like radiocarbon dating, archaeomagnetic dating requires a calibration curve, known as a secular variation curve (SVC) in order to produce a date in calendar years. Three radiocarbon determinations (Jordan *et al* 1994) and an archaeomagnetic direction (Clark *et al* 1988) were collected during the excavations at Little Bay, St Martin's, in 1981. Figure 5.17 below provides details of the magnetic and chronological data recovered from this site as they will be incorporated into the archaeomagnetic master curve (Clelland and Batt nd).

Sample	Dec	Inc	Alpha-95	Previous archaeological date range	Data in the revised database
	353.4	66.2	3.1	700BC - AD43	1425 BC ±325

Fig 5.17 Details of magnetic and chronological data from Little Bay, St Martin's (Clelland and Batt nd)

Magnetic samples were taken during the 1969-73 excavations at Nornour (Clark 1978, 66-67): SC 50-53 and SC 40-46 were taken from the burnt natural soil at the base of hearth 1 and from the contents of hearth 2 in House 6; SC 60-69 was obtained from a hearth under the east wall of Building 7. The angles of declination and inclination are given in the report but not dates in calendar years.

6 Romano-British (AD 43 – 410)

Edited by Charles Johns from contributions from Sarnia Butcher, Kevin Camidge, Dan Charman, Ralph Fyfe, Andy M Jones, Steve Mills, Jacqui Mulville, Henrietta Quinnell, and Paul Rainbird.

6.1 Introduction

Although Scilly was a very remote part of the Roman Empire it occupied a pivotal position on the Atlantic façade along the routes of trade and cultural interchange between Brittany and Western Britain; unlike Cornwall, however, it was not a source of streamed tin. The cultural origins of Roman Scilly are rooted in the local Iron Age but sites can be identified which reflect the cult practices of the wider Roman world. Charles Thomas (1985, 170-2) envisaged Roman Scilly as a place of pilgrimage, dominated by a shrine to a native marine goddess at Nornour in the Eastern Isles. The rich Roman finds from that site are among the most iconic and enigmatic emblems of Scilly’s archaeological heritage. The main characteristics of Scilly’s Romano-British (AD 43 to AD 410) resource are summarised in this review.

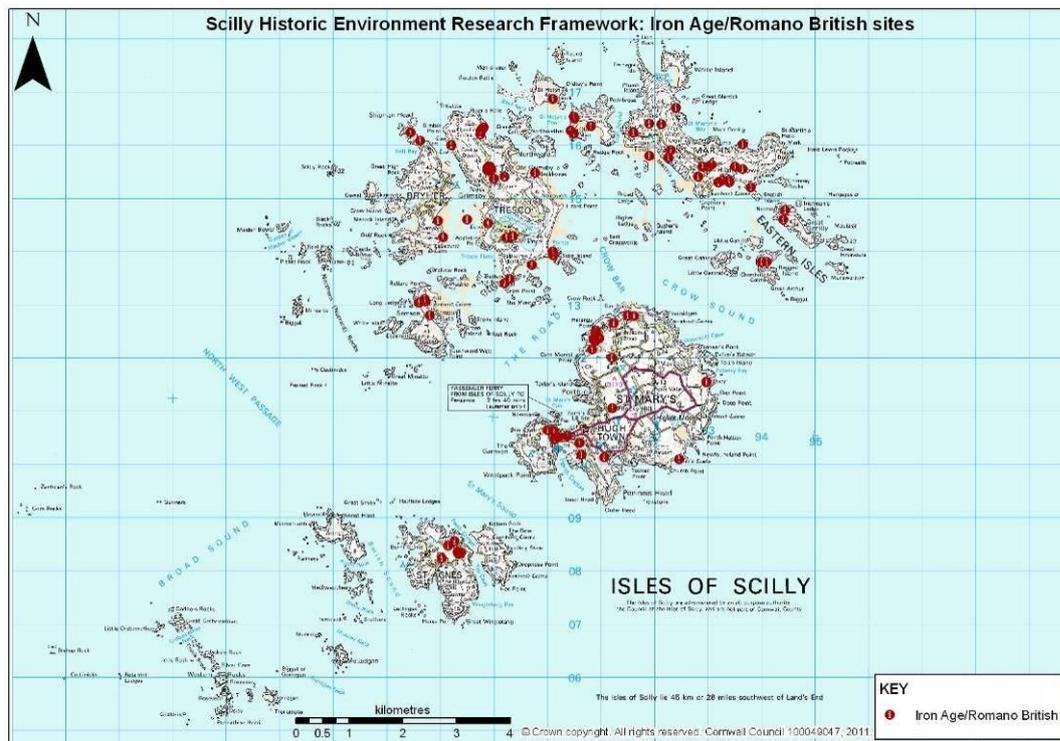


Fig 6.1 Iron Age and Romano-British sites recorded in the Scilly HER

6.2 Landscape and environmental background

Results from the Lyonesse Project (Charman *et al* 2012) suggest that the present pattern of islands was largely formed by this period, although the intertidal zone was much greater in extent (Fig 6.2).

Radiocarbon dating and environmental analysis of the lower peat deposit sample from Old Town Bay, St Mary’s, in 1997 indicated that from the Late Iron Age to the early medieval period the site consisted of an area of shallow freshwater surrounded by a largely open landscape with arable fields and pasture bordering the wetland (Ratcliffe and Straker 1998, 1).

Pollen from Old Town Bay, St Mary’s, analysed by the Lyonesse Project, suggests herb-rich grassland with a background of coastal indicators; aquatic plants suggest standing

water throughout the Roman period and into the early medieval. Samples from Bathinghouse Porth, Tresco, indicate a saltmarsh environment at the end of the Roman and beginning of the early medieval period. Samples from Porth Coose, St Agnes, show low background levels of woodland and wet grassland with very high *Plantago* and other disturbance indicators becoming increasingly aquatic during the same period (Charman *et al* 2012).

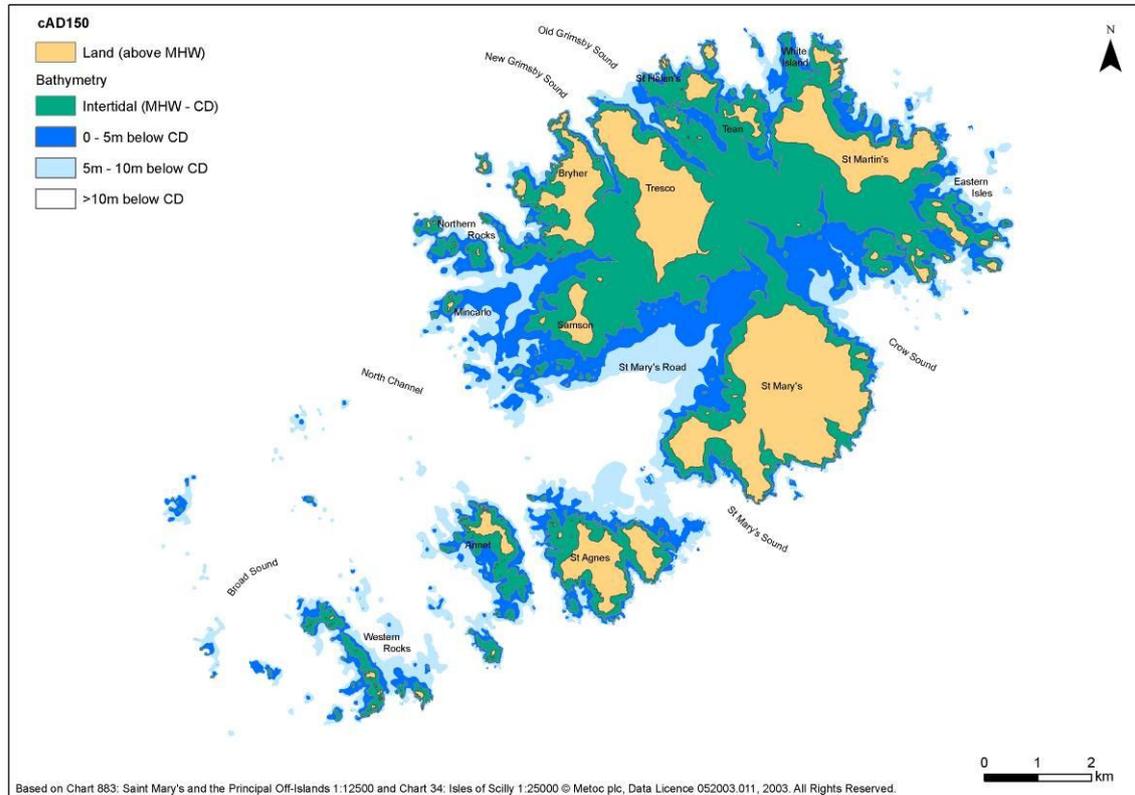


Fig 5.8 Inferred submergence model, AD 150 (based on data from the Lyonesse Project (Charman *et al* 2012); all details as for Fig 3.3

6.3 Chronology

There is general lack of radiocarbon dates from this period. Of the 18 determinations only one is from an excavated site (Nornour); the others are all from environmental samples. Tables of radiocarbon determinations and OSL ages relating to the period are presented at the end of the chapter (Figs 6.5 and 6.6).

6.4 Settlement

Simple stone houses were still the norm at this period but the walls were sometimes clay-mortared and rendered. The settlement at Halangy Down seems to date from the mid second century AD (below, Section 6.5.3). One of the excavated structures there has much in common with the courtyard houses characteristic of West Cornwall during this period (Fig 6.3). A long, narrow entrance passage leads through a massive enclosing wall into a sub-rectangular courtyard off which are two good-sized oval and circular living rooms (one with a pentagonal recess in its wall – perhaps a sleeping compartment) and a tiny sub-circular chamber that could have been a store. This is the building's final form and is the culmination of several progressive stages of construction. The Cornish examples had open central courtyards but it is possible that the house at Halangy Down may have been entirely roofed (Ratcliffe and Johns 2003, 11-12).

No equivalents to the Cornish rounds have yet been identified. In Cornwall distinctive oval buildings are now recognised as the principal house form of the Roman period (Quinnell 2004, xii).



Fig 6.3 The courtyard house at Halangy Down (photo: Cornwall Council)

6.5 The material world

6.5.1 Metalwork

The Nornour finds

By far the most unusual discovery in Scilly relating to this period is the collection of Roman material recovered from Nornour. The settlement there was excavated in the 1960s and early 1970s and consisted of 11 circular stone buildings situated just above high water. The buildings were occupied and continuously modified from the Middle Bronze Age to the end of the Iron Age. During the Roman period most of the settlement was abandoned but a large collection of Roman artefacts dating from the late first to fourth centuries AD were found in the upper levels of buildings 1 and 2 (Butcher 1993). These comprised over 300 copper-alloy brooches (Fig 6.4), c 25 finger rings, 10 bracelets, 83 Roman coins, c 22 glass beads, 13 pipe-clay figurines, c 30 miniature pots (below, Section 6.5.1.2), and a number of other Roman artefacts (Butcher 2000-1).

This is a large and unusual collection of objects to be found in the last occupation phase of a remote prehistoric round house: *‘. . . it is probably true to say that there are more Roman-style artefacts (other than pottery) from Nornour than are known from the whole of Cornwall and Devon west of Exeter’* (Butcher 1993).

The site was initially interpreted as a brooch-making workshop of the Roman period (Dudley 1968) but has since been reinterpreted as a shrine (Butcher 1978; 1993; 2000-1), which Thomas (1985) suggests may have incorporated a fire or beacon. Fulford (1989) considered the objects as evidence of a Roman shipwreck (or possibly two different wrecks given the date span) because the objects are not varied enough to compare with the personal items offered at shrines and temples; however, most

recently Reece (2011, 256) has noted that 'The coins from this site are unusual both in number and in unbroken sequence and this must suggest constant visitation from people from the highly Romanised parts of either Britain or Gaul.'

Whatever the genesis of this remarkable collection of objects, they almost certainly have a maritime connection. Crucial to our understanding of this site would be a better understanding of the Roman coastline around it, as this (as suggested by Thomas 1985, 165-72) may have been 'a harbour for Roman Scilly' a safe haven from easterly gales suitable for mariner-pilgrims which is conspicuous by its absence today.



Fig 6.4 Brooches from Nornour (Isles of Scilly Museum)

Coins

Roman coins from Scilly were catalogued by Roger Penhallurick (2009, 17-18, 257-70). Only one coin earlier than Roman Imperial has been found, a Republican *denarius* dating to c 109 BC ploughed up at North Farm, St Martin's, in the 1960s. Penhallurick noted that Julius Solinus observed that the inhabitants of Scilly 'refuse money' and prefer to barter so that 'it is hardly surprising that few early coins have been found there'. Most of those reported date from the later empire.

Penhallurick recorded the following Roman Imperial coins from Scilly: one second century AD bronze coin from St Agnes; a *denarius* of Trajan (AD 98-117) and a half *centenionalis* of Magentius (AD 350-353) from St Martin's; half a dozen silver coins of Constantius (or Constantius II), Julian and Honorius dating from AD 351 to AD 395 found on Samson in the 1870s (their whereabouts is now unknown); two *sesterii* of Marcus Aurelius (AD 161-180) and a *sestertius* of Septimus Severus (AD 193-211) from Tean (Thomas 1960b, 17-18); a *follis* from Tresco Abbey Gardens; a *sestertius* of Marcus Aurelius (AD 161-180) from an unknown site on Tresco and a rumour of a hoard found by a metal detectorist at Merchant's Point, Tresco, 'some years ago'.

In addition to these other Roman coins have been found by Michael Tangye (The Scillonian 2007/8, no 266) and a brass *sesterius* of Hadrian (AD 119) was found by him at the north end of Samson Hill, Bryher in 2008 (The Scillonian 2010, no 271).

The coins from Nornour are not typical of Romano-British hoards for a number of reasons. Forty-five per cent are late first century to Commodus (177-192) issues, which are rare on rural sites whether religious or secular, and 36% are of the House of Constantine, sandwiched between a small number of later third and later fourth century coins. Also late third century radiate coins are scarce among the Nornour coins although they are the commonest coins found on Romano-British sites elsewhere, including Cornwall.

As mentioned above, Fulford (1989) sees the Nornour coins as deriving from perhaps two dispersed hoards, the first ranging in date down to Commodus, the second comprising the remainder in which the handful of third century radiate coins would not be out of place. Penhallurick (2009) points out that there are problems with this interpretation: why should coins from two shipwrecks separated by c 200 years turn up on the same site and why should the coins and other finds assigned to the first wreck be left untouched? He sees a shrine of some sort being the best explanation of the current evidence, and this explanation is supported by the conclusions of Reece (2011, 254). Reece's comparison of the Roman coins from Nornour with Carvossa and Trelvelgue in Cornwall is presented below in Figure 6.5.

	Carvossa	Nornour	Trelvelgue
Silver:			
Nero	1	-	-
Vespasian	1	-	-
Domitian	1	-	-
Bronze:			
Vespasian Sestertius	-	1	-
Dupondius	2	4	-
As	1	2	1
Vespasian or Titus Dup/As	-	1	-
Domitian Dupondius	1	2	-
As	3	2	-
Late first century Dupondius/As	-	3	-
Trajan Sestertius	-	3	-
Dupondius	-	7	-
As	-	3	1
Trajan or Hadrian Dupondius	-	1	-
Hadrian Sestertius	-	1	-
Dupondius	1	1	-
As	1	1	-
Antoninus Pius Sestertius	-	1	-
Dupondius	-	2	-
Faustina I Dupondius	-	1	-
As	-	2	-
Marcus Aurelius Caesar Dupondius	-	2	-
Marcus Aurelius Aug Sestertius	1	2	-
Dupondius	-	1	-
Faustina II Dupondius	-	2	-

	Carvossa	Nornour	Trevelgue
Commodus Sestertius	-	1	-
Crsipin Dupondius/As	-	1	-
Lucilla Sestertius	-	1	-
Julia Domna Sestertius	-	1	-
Postumus	-	1	-
Claudius II	-	2	1
Tetricus I	-	1	-
Tetricus II	1	4	-
270-309	0	0	0
309-13	-	1	-
313-17	0	0	0
317-20	-	-	1
320-24	-	5	3
324-30	-	1	-
330-41	-	15	15
345-48	-	6	1
348-50	-	1	2
350-53	-	2	11
353-60	-	0	6
364-78	-	2	32
388-402	-	0	2

Fig 6.5 Comparison of coins from Trevelgue, Carvossa and Nornour (from Reece 2011)

Brooches

In Scilly most of the relatively few brooches found (apart from the group of 300-plus from Nornour) are of first century AD types.

Brooches are a characteristic of Scillonian Iron Age and Roman-period cist graves. Of the ten cist graves excavated by Paul Ashbee at Porthcressa, St Mary's, in 1949, three contained two brooches each, and four only one (Ashbee 1979, 63). Of the five cist graves excavated by Dorothy Dudley at Poynter's Garden, St Mary's, only one contained metal finds, fragments of iron and bronze pins (Dudley 1960-1, 222). The cist grave on Old Man, Tean contained two bronze brooches and possibly the remains of an iron penannular brooch or iron ring (Tebbutt 1934). With one exception, the disc brooches from the Porthcressa cists are all dated to the first century AD, as are the two brooches from the Old Man cist (Ashbee 1979, 78).

A decorated copper alloy brooch of the 'Colchester' type was found during recent excavations at Higher Town, St Agnes (Butcher, forthcoming). It is of a type common in south-east Britain in the first half of the first century AD and found in smaller numbers in other parts of Britain. The brooch was found in a pit and appears to be the result of deliberate deposition rather than casual loss.

Bronze objects from Tean

A possible bronze ornament, an early Roman-period bronze brooch, a small fragment of strip bronze and an object made of bronze wire are known from the Roman period midden at Tean (Thomas 1960b, 17-20).

Iron

From the midden at Tean there were also numerous pieces of heavily corroded iron, including a gouge and fragment of a small saw blade, possibly Roman period (Thomas 1960b, 20)

Tin

Scilly has sometimes been identified as the tin producing islands or Cassiterides referred to by classical writers (below, Section 6.6.6) and it is a popular misconception that Scilly was a source of tin in Roman times and / or an important staging post in the export of Cornish tin to Greece and Rome. There are veins of tin on three or four of the islands, particularly at the north end of Tresco, but it has never been viable to mine or stream tin on Scilly (Thomas 1985, 150-1).

6.5.2 Glass and amber

Glass beads were found in one of the Parson's Field cist graves (Dudley 1960-1), and two amber beads in the cist grave at Lawrence Bay, St Martin's (Lewis 1948, pl Xb). From the Roman-period midden at Tean there was a fragment of Roman or early medieval glass (Thomas 1960b, 20-1).

6.5.3 Ceramics

Past work on Roman-period ceramics in Scilly has been hampered by reference being made to Cornish material of Roman date, a subject not properly understood until research carried out by Henrietta Quinnell following the excavation of Trethurgy Round (Quinnell 1986) and not fully published until 2004 (Quinnell 2004, 5.6.2). This research has established that Cordoned Ware continued, with some copying of Roman forms, until the second century AD, described as Second Phase Cordoned Ware (*ibid*). It has also shown that some cordoned forms continued as a strand of Romano-Cornish ceramics until at least the end of the Roman period, Third Phase Cordoned Ware. Other contemporary forms broadly copy cooking pots and serving bowls in the black-burnished wares manufactured around Poole Harbour in Dorset. All pottery manufactured in Cornwall during the Roman centuries appears to have been gabbroic. A reference Type series is set out in Quinnell (2004, 5.6.3). Given this background, it is not surprising that published dates for Roman-period assemblages need substantial review.

By the time that identifiable Roman ceramic forms appear on Scilly the use of local granitic clays had probably ceased, replaced by gabbroic fabric from the mainland. The earliest site at which this is clearly demonstrable is the midden adjacent to the Iron Age cist burial at Hillside Farm, Bryher, in the late first century AD (Quinnell 2002-3); the midden continued in use for perhaps a century. Ceramics here are gabbroic but the assemblage is small. The largest and best published Roman-period assemblage is that from the settlement at Halangy Down (Samuels 1996) which included thin-section petrological work by D F Williams. About 80% of the published assemblage was gabbroic, the remainder granitic. Some (*ibid*, fig 39, no 28) appear residual, broadly Bronze Age; a little, e.g. fig 39, no 19, may be South Devon, which petrologically is indistinguishable from Scillonian granitic fabrics. Comparison of the published drawings with the Trethurgy sequence suggests that the earliest sherds are probably mid-second century AD; the settlement then continues right through the Roman to the post-Roman period.

Although the western area of Nornour continued in use during the Roman period, with some specialised, probably religious use (Butcher 2000-1), there is little contemporary

pottery. The excavator indicated a Roman date for a few illustrated pieces (e.g. Dudley 1968, fig 6, no 38, fig 7, nos 62, 66-8) but the assemblage needs modern review to establish the Roman ceramics present. Given the specialised nature of the site it is possible that the Roman ceramic suite will prove unusual for the Islands.

Two of O'Neil's unpublished hut circle sites are reported to have produced finds from the Roman period: Par Beach Site A and May's Hill, both on St Martin's (Ashbee 1974, 318, fig 34, fig 35). Thomas (1985, 183) investigated a midden producing Roman pottery and other contemporary artefacts on Tean; this remains unpublished. The midden investigated and published by Dudley at Poynter's Garden contained a few sherds of Roman-period pottery, including a flanged bowl of the late third or fourth centuries (1960-1, fig 29).

The cist-grave cemetery at Porthcressa, firmly dated to the Roman centuries by metalwork, produced two complete vessels (Ashbee 1954), one of which can now be seen as a Cordoned Ware Type D jar of the late first /early second century AD; the other, despite Ashbee's comments, has no parallel on the mainland and could well be an import from France.

Observation of the trenches dug for the supply of electricity to the off islands produced a scatter of Roman material identified to modern standards (Quinnell 1991). The gabbroic pottery is of the mainland 'standard' type typical of the Roman period (Quinnell 2004, 108). A group from Dial Rocks, Tresco, includes both gabbroic and apparent South Devon sherds. There is a scatter of Roman gabbroic sherds across the Dolphin Town area and occasional sherds from different locations in the south of Tresco. A small group with gabbroic sherds comes from Veronica Farm, Bryher, and gabbroic sherds were recorded at three locations on St Agnes. Gabbroic pottery was found at locations both at Higher Town and Lower Town, St Martin's.

Work done on the electricity supply trenches established the presence of Roman vessels made outside Cornwall and Devon (Quinnell 1991). Dorset black-burnished ware was found at two locations in Dolphin Town, Tresco, at Periglis, St Agnes, and at Churchtown, St Martin's. Greywares, currently not sourced, came from two locations in Dolphin Town and from The Town on Bryher. Oxfordshire ware came from a limpet midden west of The Town on Bryher. A piece of Spanish amphora, Dressel form 20, was recorded at Middle Town, St Agnes. A probable Roman-period Breton / Norman import was studied from Middle Town, St Agnes. A small group of samian was published from Halangy Down (Dickenson and Hartley in Ashbee 1996), a sherd comes from Hillside Farm, Bryher (Quinnell 2002-3), and another sherd from Nornour (Butcher 2000-1, 8). Two sherds of samian were found by O'Neil at the Roman-period house at May Hill, St Martin's (Ashbee 1974, 184), and 'scraps' at the unpublished midden on Tean investigated by Thomas (1985, 183). Some fine slipped ware from Halangy Down is variously described as 'Gaulish Rhenish' (Samuels 1996, 82) or 'Castor' (Ashbee 1974, 196). Overall these Roman fabrics reflect the general pattern of imports on Cornish Roman sites (Quinnell 2004, chapter 5 *passim*), although the apparent French import piece from St Agnes emphasises the potential of the location of Scilly on western sea routes for attracting occasional exotica.

The virtually complete vessel from a pit at Higher Town, St Agnes, is in a second period Cordoned ware with influences derived from samian (Quinnell, in prep e).

One final and unusual component of the Scillonian Roman period assemblage is the group of some 30 miniature vessels of gabbroic clay with simple horizontal cord impressed decoration below their rims from Roman contexts on Nornour (Butcher 2000-1). Nothing like these is known in gabbroic fabric. They appear to have related to the ritual practices at Nornour, their shape and decoration referencing the vessels of the Early Bronze Age on the Cornish mainland. M A Owoc (Owoc et al 2003; Manske et al) comments that the cord used was surprisingly uniform with differences from that found on Bronze Age ceramics.

6.5.4 Bone

From the Roman period midden at Tean there was a bone comb fragment (Thomas 1960b, 21).

6.5.5 Flint and stone

Flint and bone tools were still important in the Roman period but it is likely that iron and bronze were also used for knives, arrowheads and nails. Rotary querns (hand mills) gradually replaced earlier saddle and bowl types, making the grinding of corn more efficient (Ratcliffe and Johns 2003, 12). The local resource of cobbles and boulders for tools continued to be considerable and stone continued to have a very prominent use as mortars and saddle querns, hammerstones, etc.

6.6 Subsistence

The inhabitants of Scilly continued to practise a mixed economy, but there were a few new developments. Pigs and fowl were kept in addition to sheep, goats and cattle, and dogs and rabbits are recorded for the first time. Red deer may have died out in the second or third centuries. A few additional species of fish have also been identified: mullet, common eel, whiting and john dory. Birds of fresh or brackish water are more common: teal, long-tailed duck, scaup, common snipe, white stork, heron and possibly moorhen, swan and bittern. This may be indicative of a rising sea level creating pools behind dunes breached during severe storms, or merely dietary preferences (Ratcliffe and Johns 2003, 12).

The base of the midden at East Porth, Tean, sampled during the 1989-93 Coastal Erosion Project, dated from the third century AD (Ratcliffe and Straker 1996, 13). The only crop identified with certainty was barley, which was not referable to species. The narrow range of wild plants were probably arable weeds: wild radish, fat hen, knotgrass and vetch or tare, all of which are commonly associated with arable crops and occur in prehistoric deposits in Scilly. Romano-British animal remains from the midden include the bones of a sheep or goat, grey seal, a small range of birds and a single fish species, wrasse. There were also ox, pig and dog associated with first to fourth century AD pottery (Thomas 1985, 183).

The main food animals at Halangy Down were sheep (47%), with cattle (37%) making a substantial contribution and pig (15%) of lesser importance. There are a few cat bones from Halangy Down, probably from a single individual; 41 bones in a third century AD context (Locker 1996; Ratcliffe and Straker 1996, 36).

6.7 Transport

There is no archaeological evidence to date of any terrestrial vehicles of this period from Scilly, and no boats or ships are known, although four Roman-period ships have been found in southern Britain - Blackfriars I, New Guys House (both second century AD), Barlands Farm, the County Hall Ship (London) - and another from St Peter Port, Guernsey. The three latter examples date to the third century AD.

Although there is no British archaeological evidence for hide boats from this period, there is documentary and possible iconographic evidence for them. Pliny the Elder refers to hide boats framed with withies in connection with the tin trade (Ransley *et al* 2011).

There is a lack of Mediterranean vessels in the British archaeological record of this period, possibly accounted for, at least in part, by the trade routes being predominantly overland '*...long-distance trade between the Mediterranean region and northern Europe was conducted primarily via the inland waterways of Gaul, which were navigable along all the main axes of communication rather than open-sea voyaging around the Atlantic coast*' (Ransley *et al* 2011, 193).

This could account for the relatively sparse assemblage of Roman artefacts recovered from Scilly (excluding the material from Nornour), which are perhaps similar in character and number to those recovered from Cornwall (Thomas 1985). This does not suggest that Scilly was of any particular significance in the maritime networks of Rome.

6.8 Social relations

Scilly, then, occupied a very peripheral position in the Roman Empire, so remote that two heretic Spanish bishops were exiled there in AD 384 (Thomas 1985, 149). There is no evidence to suggest that the Islands were ever under direct rule or even formally conquered and there appears to have been little direct Roman influence on everyday life. Scilly may have been administered for Rome by its native leader(s), but even this seems improbable as, unlike Cornwall, Scilly was not a source of tin and its people were probably left largely to their own devices (Ratcliffe and Johns 2003).

6.9 Religion and ritual

There are a number of classical references which may allude to Scilly, although these need to be treated with a degree of circumspection. The early first century AD Roman writer Pomponius Mela speaks of the holy inhabitants of Sena, one of a group of islands called the Cassiterides, which, from his description of their geographical location, could be interpreted as the Isles of Scilly. On Sena he relates that there was a Gaulish oracle attended by nine virgin priestesses who were able to predict the future, cure all illnesses and controlled the elements. Miranda Green suggests that Bryher or Tresco may have been Sena (Green 1997, 103).

Further place-name evidence hints at the islands being a cult centre during the late Iron Age (water being one focus of religious practice at this time). Scilly is first mentioned as *insula sillina* by classical Roman writers of the first to third centuries AD, but the name is of native pre-Roman origin and may incorporate that of a Celtic female deity. Thomas (1985, 170-2) envisages Roman Scilly as principally a place of pilgrimage dominated by a native marine goddess. As discussed above, on current evidence the presence of some sort of shrine is the best explanation for Roman-period activity on Nornour.

During the nineteenth century a classical altar, now in Tresco Abbey Gardens, was found in a well, possibly a votive shaft, at Mount Holles, towards the bottom of Garrison Hill, St Mary's. The altar may originally have stood in a Romano-Celtic cult building or temple. It is uninscribed but has side panels bearing Mithraic-type symbols: a long shafted axe and a cleaver (Fig 6.4; Ratcliffe and Johns 2003).

The Porthcressa cist grave burial tradition continued into this period; typological dates for most of the brooches and pottery recovered from the Porthcressa cemetery are not earlier than the end of the first century AD, which led Ashbee to consider the graves to be wholly Roman in date and to surmise that 'refugees' from the Cornish mainland may have imported the cist-burial tradition to Scilly sometime after the Roman conquest (Ashbee 1979, 78; 1986, 207). However, the radiocarbon dates from the Bryher sword and mirror burial demonstrated that the tradition dates to at least the first century BC (Johns 2002-3).

Two small pits found at Higher Town, St Agnes, contained the rim of a pot and an early Roman brooch. These were evidently the result of ritual deposition and two adjacent postholes indicate that the position of the pits may have been marked by wooden posts (Taylor and Johns, in prep).

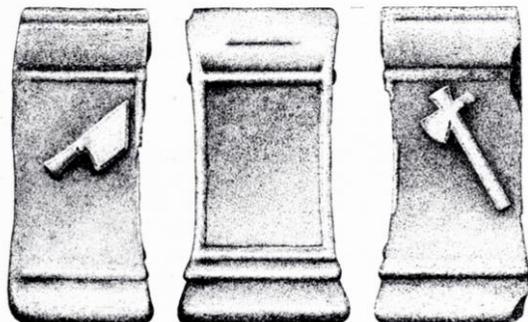


Fig 6.4 Roman altar from Mount Holles, now in Tresco Abbey Gardens (© Rosemary Robertson)

6.10 Scientific dating

6.10.1 Radiocarbon dates

The 18 radiocarbon determinations listed below in Figure 6.5 below have all been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period to which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they appear.

Lab Ref	¹⁴ C age BP	Cal AD @ 95%	Site	Context	Reference
WK-5695	1940 ±130 BP	351 cal BC – cal AD 385	Old Town Bay, St Mary's	Base of lower peat deposit. Of limited value due to high deviation?	Ratcliffe & Straker 1998
GU-5057	1980 ±80	182 cal BC- cal AD 220	Crab's Ledge, Tresco	Sample 2 from basal 10mm of exposed peat	Ratcliffe & Straker 1996, 128
BETA-301602	2000 ±30	50 cal BC – AD 60	Lower Moors St Mary's	Decayed plant material	Perez forthcoming
SUERC-32920	1980 ±30	50 cal BC-cal AD 80	Old Town Bay, St Mary's	Bulk: organic sediment including Phragmites stem & ?Monocot stem (humic acid fraction) 22–23cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-38088	1965 ±35	50 cal BC-cal AD 130	Porth Coose, St Agnes	Humic acid, 22–23cm below surface of intertidal peat	Marshall <i>et al</i> 2012
HAR-459	1840 ±70	22-378	Nornour	Charcoal from 22 samples (510 & (52) from Building 7	Butcher 1978, 29-112
GU-5056	1880 ±100	101 cal BC – AD 389	Par Beach, St Martin's	Sample 2 from top 10mm of intertidal peat. Of limited value due to high deviation?	Ratcliffe & Straker 1996, 128
SUERC-39448	19563 ±38	Cal AD 1 –n 94	Lower Moors St Mary's	Peat	Perez forthcoming

Lab Ref	¹⁴ C age BP	Cal AD @ 95%	Site	Context	Reference
GU-5231	1830 ±90	18 cal BC- AD 407	Crab's Ledge, Tresco	Column VI (top 20mm of middle peat)	Ratcliffe & Straker 1996, 128
SUERC-38089	1835 ±35	80-320	Porth Coose, St Agnes	Humin fraction, 22-23cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-39445	1762 ±38	130 - 336	Lower Moors St Mary's	Peat	Perez forthcoming
Wk-5693	1650 ±60BP	255-540	Porth Coose, St Agnes	Peat deposit	Ratcliffe <i>et al</i> , forthcoming
GU-5230	1600 ±60	264-595	Crab's Ledge, Tresco	Column VI (basal 20mm of upper peat)	Ratcliffe & Straker 1996, 128
OxA-4699	1605 ±50	337-570	East Porth, Tean	Charred seeds (<i>Hordeum sp.</i>) from lower half of midden - layer (3)	Ratcliffe & Straker 1996, 98
OxA-23862	1632 ±28	350-540	Old Town Bay, St Mary's	Bulk: mix of herbaceous & monocot stems (humic acid fraction), 4-5cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-32916	1620 ±30	380-540	Porth Coose, St Agnes	Dicot stem fragments, 1620 ±30	Marshall <i>et al</i> 2012
GU-5062	1570 ±50	394-600	Crab's Ledge, Tresco	Sample 3 from top 10mm of intertidal peat	Ratcliffe & Straker 1996, 128
SUERC-32993	1595 ±30	400-550	Crab's Ledge, Tresco	Organic sediment with ?Monocot roots (humin fraction)	Marshall <i>et al</i> 2012

Fig 6.5 List of Romano-British radiocarbon dates

6.10.2 OSL dating

Optically Stimulated Luminescence (OSL) dating was carried out on submarine and intertidal deposits recovered during the Lyonesse Project in 2009 and 2010. One 2010 sample from Bathinghouse Porth, Tresco, dates to the Late Iron Age - Roman period (Roberts 2012).

Location	Lab no.	Context	Material	OSL Age	Calibrated date (95% confidence)
Bathinghouse Porth, Tresco	184/LPTR-4A	0.19m down core	Quartz	1890 ±110 BP	110 cal BC- cal AD 340

Fig 6.6 List of Romano-British OSL Ages, expressed as years before AD 2010, rounded to the nearest 10 years

7 Early medieval (410 – 1066)

Edited by Charles Johns from contributions from Kevin Camidge, Dan Charman, Ralph Fyfe, Steve Mills, Jacqui Mulville, Paul Rainbird, Helen M Roberts and Carl Thorpe.

7.1 Introduction

In Scilly, as in Cornwall, early medieval society and settlement had its foundations in the Romano-British period, but significant changes did occur, not least the adoption of Christianity, which may have been introduced from Cornwall, Gaul or the Mediterranean. Imported pottery hints at trade with these places and also North Africa and the Occident. Excavations carried out in the mid-twentieth century at small ecclesiastical sites or hermitages are one of our main sources of knowledge for this period in Scilly's history. The main characteristics of Scilly's early medieval resource are summarised in this chapter.

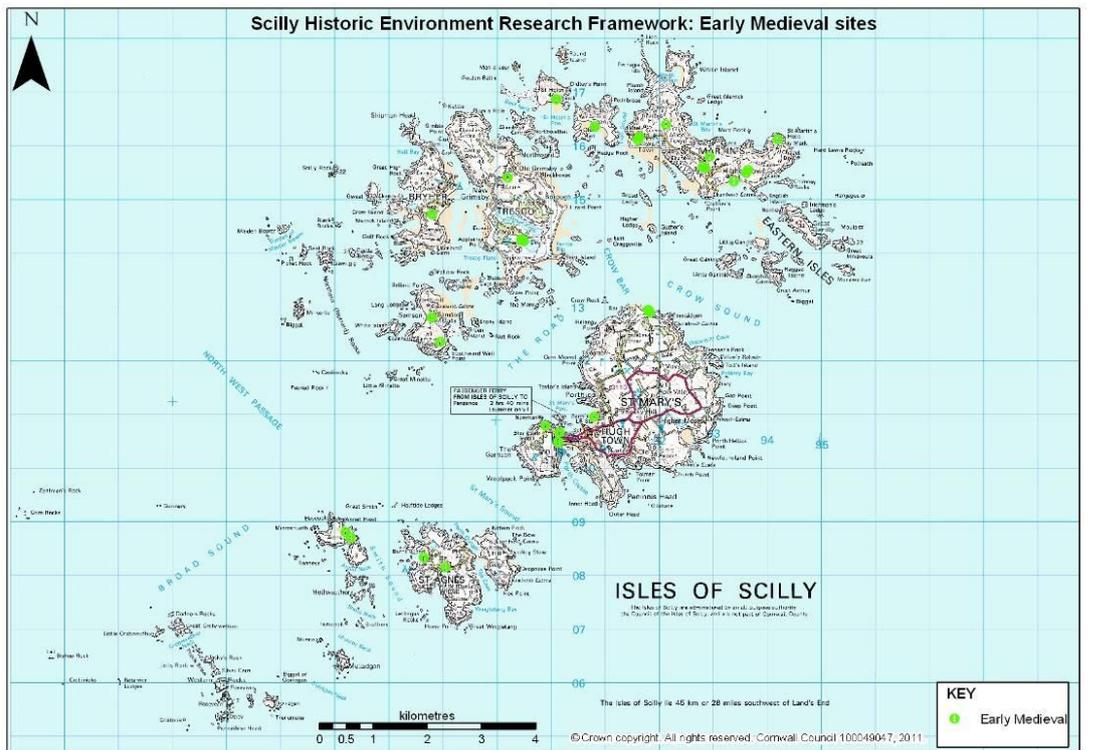


Fig 7.1 Early medieval sites recorded in the Cornwall and Scilly HER

7.2 Landscape and environmental background

Results from the Lyonesse Project indicate that by the beginning of this period the present pattern of islands had already been formed for nearly 2000 years. During this period the sheltered, low gradient areas between the islands that had been suitable for saltmarsh growth during earlier times became less and less extensive and it seems likely that they were subject to much greater erosion and retreat once an open channel north of St Mary's existed during most states of the tide. The date of this is difficult to assess with any accuracy but it probably occurred during the early medieval period as the highest part of the Crab's Ledge saltmarsh peat is dated to cal AD 969 ±294 (Charman *et al* 2012).

Pollen from Old Town Beach suggests herb-rich grassland with a background of coastal indicators; aquatic plants suggest standing water throughout the Roman and into the early medieval periods. Samples taken at Bathinghouse Porth, Tresco, indicate a saltmarsh environment at the end of the Roman and beginning of the early medieval periods; samples from Porth Coose, St Agnes show low background levels of woodland

with wet grassland with very high *Plantago* and other disturbance indicators becoming increasingly aquatic at this time (Charman *et al* 2012).

7.3 Chronology

There are 22 radiocarbon dates and two Optically Stimulated Luminescence (OSL) ages for this period, and a ceramic sequence has now been set out which will aid dating for this period (Thorpe 2011).

7.4 Settlement

The early medieval settlement pattern on Scilly is reflected by the distribution of locally-made grass-marked pottery and sherds of imported wheel-made Gaulish and Mediterranean wares; a dozen or so such sites have been identified. Where settlements have been excavated there is evidence for the continued occupation of stone houses built during the Romano-British period (and earlier). However, a few houses of early medieval date have been identified and these are rectangular, allowing for a ridge roof and an interior free of supporting posts (Ratcliffe and Johns 2003, 13).

7.5 The material world

7.5.1 Metalwork

Coins

Penhallurick (2001, 16-18) records two Byzantine coins from Scilly which he considers could be modern losses: a small module bronze *folles* from the Giant's Grave on Porth Hellick Down, probably of Anastasius (AD 491-518), and a *nummi* of Constans II (AD 641-668) from North Farm, St Martin's. The latter was found in the same field as three Roman coins (above, Section 6.5.1.2), along with a 'rose' farthing of Charles II, and he considered that 'the whole assemblage [is] suspiciously like a collection thrown out with household rubbish to manure a field.

More recently, the Portable Antiquities Scheme in Cornwall has produced a number of Late Roman and Byzantine coins. Considered with the finds of post-Roman pottery best known from Tintagel this suggests sea trade with the Eastern Mediterranean via the Straits of Gibraltar and the Bay of Biscay (Tyacke 2011, 75) and perhaps the Byzantine coins from Scilly need to be reconsidered in this light.

A possible Anglo-Saxon *sceat* was found on Peninnis Head, St Mary's, in 1995, although its identity has not been confirmed (Penhallurick 2009).

Other metal artefacts

The 1971 excavations at East Porth, Samson, recovered a variety of metal artefacts including a copper alloy buckle. A total of 80 fragments of iron were found there, the majority of which came from the levels associated with the stone house and from beach rubble, but the condition of all the metal was very poor and in many cases all that survived were lumps of iron oxide concreted to sand. Those items which could be identified included a buckle plate, two knives, a fish hook, six nails, three wire fragments, four fragments of iron sheeting, a possible ferrule, together with various other fragments (Neal forthcoming b and c).

7.5.2 Glass

The 1971 excavations at East Porth, Samson, recovered a blue glass bead (Neal, forthcoming a).

7.5.3 Pottery

As is the case with the Romano-British period (above, Section 6.5.3), previous work on early medieval period ceramics in Scilly has been hampered by reference being made to Cornish material of this date, a subject not properly understood until research recently

carried out by Henrietta Quinnell and Carl Thorpe. This knowledge has been progressed with the publication and study of several important sites, including Mawgan Porth (Bruce-Mitford 1997), Trethurgy (Quinnell 2004), Launceston Castle (Saunders 2006), Tintagel (Barrowman *et al* 2007), Boden Veau fogou (Gossip, forthcoming a), Gwithian (Nowakowski *et al* 2007), and Hay Close, Newlyn East (Jones, forthcoming).

This research has established a ceramic sequence which is set out in Thorpe (2011). This sequence was first proposed by the pioneering work of Professor Charles Thomas, who was the first to identify and classify both the native wares (Thomas 1960a; Thomas 1968) and the imported wares (Thomas 1957; 1959; 1960a; 1981); however, the recent work has been able to add to the ceramic details (forms and fabrics) and refine the dating for this material.

Native wares

In the late Roman period, between the fourth and fifth centuries AD, there was a well developed and flourishing pottery industry within Cornwall. Manufactured mostly from gabbroic clays derived from the rocks of the Lizard, the principal repertoire of forms produced was slack-profiled jars (Trethurgy Type 4), the Cornish flanged bowl (Trethurgy Type 22) and the flat grooved-rim bowl (Trethurgy Type 21), together with large storage jars both with cordons (Trethurgy Type 13) and of large cooking pot form (Trethurgy Type 16). The work at Trethurgy suggested that this suite of domestic wares continued into the fifth and possibly sixth centuries, showing that the basic patterns of cooking and eating of the Roman period endured until then (Quinnell 2004). This material has been recognised on Scilly by Henrietta Quinnell.

Unlike large parts of Britain where the use or production of ceramics declined or ceased completely in the late fifth and sixth centuries AD, in Cornwall and Scilly native pottery became more experimental and innovative and developed rapidly in many directions (Thorpe 2011). This material was first identified by Charles Thomas (Thomas 1956; 1960a) during excavations at Gwithian and was subsequently termed 'Gwithian Style' wares. Seen as a continuation of the Cornish late Roman potting tradition, forms include numerous styles of jars and bowls (sometimes flanged) with curved and everted rims, often with a concave internal rim bevel. This ware also introduced the use of low walled platters (occurring sometimes without a wall at all). These platters are a completely new form, perhaps connected to some change in the preparation and serving of food.

Gwithian Style ware is often in a highly fired, fine, well-sorted and, on Scilly, granitic fabric. (No petrographic study has been done of this material from Scilly.) This is interesting in itself in that it suggests that manufacturing in local granitic clays had recommenced, having been supplanted during the Roman period by mainland gabbroic wares (see above Section 6.5.3). Surfaces are often better finished than their Roman predecessors, sometimes wiped, and occasionally slightly burnished with some patterning in the burnish. The undersides of the bases of the vessels are often sanded, or have been sat on sand prior to firing.

The largest collection of Gwithian style material was obtained from the excavations at East Porth, Samson, in 1971 (Neal forthcoming a). Gwithian Style ware is dated to the sixth to late seventh centuries AD. This is supported by the radiocarbon (AMS) determination obtained from internal residue on a sanded platter sherd from Gwithian (Nowakowski *et al* 2007) GMI context (2210) of cal AD 550-650 (OxA-14528), and a second date from residue within a platter at Boden (Gossip, forthcoming a) of cal AD 590-670 (OxA-14560). Unfortunately no scientific dating has been obtained for the material from East Porth, although its association with imported wares (qv) points to a date probably within the seventh century.

A single stray sherd of Gwithian Style ware came from a midden exposed by rabbit burrows at Mays Hill, on Tresco (Thomas 2005). Unpublished drawings from excavations of a midden on Tean, Isles of Scilly (mostly unpublished) carried out in 1956 and 1960 (Thomas 1985) show at least two Gwithian style jars. This site is

important, though, in that these vessels have 'grass-marking' on their surfaces. A radiocarbon date of cal AD 600-774 (OxA-4695) came from the upper part of this midden (Ratcliffe and Straker 1996, 98). This is the earliest date obtained for any vessel with a grass-marked surface, and Thomas has even suggested that this innovation may have started on Scilly (Thomas 2005).

Imported wares

A feature of early medieval Scilly, reflecting the picture seen in mainland Cornwall, is its wide-ranging international contacts through trade, evidenced by the presence of imported wares within ceramic assemblages on several sites.

The first group is of imported wheel-made wares of Mediterranean origin, comprising fine red slip tableware and amphorae. The tableware consists of Phocian Red Slip Ware (PRSW) from western Turkey and African Red Slipped Ware (ARSW), produced in the Carthage region of Tunisia (Hayes 1972; Hayes 1980). Produced over a long period of time, from the fourth to seventh centuries AD, the forms changed rapidly, most likely in response to fashion, which makes them very useful for dating. Forms found in Cornwall suggest dates from c AD 450-550. Only one site in Scilly has produced these fine table wares, with a single sherd of each being identified from material recovered from the excavations at East Porth, Samson (Neal, forthcoming).

The amphorae are Class Bi (*Late Roman 2 amphora*; Peacock and Williams Form 43) from Greece (for wine and olive oil); Class Bii (*Late Roman 1 amphora*; Peacock and Williams Form 44) from Cilicia in south-east Turkey (wine and olive oil); and Class Biv Amphorae (*Late Roman 3 amphora*; Peacock and Williams Form 45) from Sardis in western Turkey (wine or fine oil). These have a long range of use, from the fifth to seventh centuries AD, but the peak period of importation and distribution within Britain appears to have been between the late fifth and mid sixth centuries AD (Thomas 1981; Fulford and Peacock 1984; Peacock and Williams 1986; Tyers 1996; Dark 2001).

A single sherd of Bi amphora (a broken disc that may have been part of an unfinished spindle whorl?) has been recovered as a surface find from Mays Hill, St Martin's (C Thorpe, pers comm). Bii amphora was found in the unpublished excavations at Tean (Thomas 1985) while a single sherd came from the excavations at East Porth, Samson (Neal, forthcoming). The excavations at Tean also produced several fragments from a single Biv amphora, while the Isles of Scilly Electrification Project recovered a single sherd from immediately south-west of St Martin's church (Ratcliffe 1991).

The second group is of imported wheel-made wares, D and E wares, which originated in what is now France (Gaul).

D wares are fine table wares, forms of which include mortaria and both thick-rimmed and fine bowls. Originating from the Bordeaux area, forms found in Britain suggest an importation date within the sixth to seventh centuries AD (Campbell 2007). A single decorated sherd of this ware (from a carinated bowl) was identified in the material from the unpublished excavation by O'Neil in 1950 on Mays Hill, St Martins (Thomas 1985).

E wares are a range of 'kitchen' wares, in a wheel-thrown, hard-fired (almost stoneware) fabric. The most recent discussion of this material has been by Campbell (2007). Although the centre of production is not known, it is most likely to have been from the Loire valley. Evidence from Whithorn suggests its date range to be from the late sixth to early eighth centuries (Hill 1998), c 575-700 (Campbell 1991; 1996; 2007). From the excavation of crannog at Loch Glashan a radiocarbon date obtained from internal residue has given a date of 605-660 at 1 σ cal AD (Crone and Campbell 2005), while the excavation at Hay Close, Newlyn East (Jones forthcoming) produced a date of 390-540 cal AD (95.4%). No scientific dates have been obtained for material from Scilly.

The largest collection of E-ware comes from the unpublished 1956 excavations on Tean (Thomas 1960b; 1985; 2005). Here over 60 sherds from a minimum of 13 vessels were collected. Although none of this material has been scientifically dated the midden was

revisited in 1996 and two charred grain samples were dated. The lower part of the midden gave a date of cal AD 270-560 (OxA-4699) while a date of cal AD 600-770 (OxA 4695) came from the upper part (Ratcliffe and Straker 1996, 98).



Fig 7.2 E ware from East Porth, Samson (photo: Carl Thorpe)

The next largest collection is from East Porth, Samson (Neal, forthcoming). Here approximately 50 sherds were recovered from a minimum of six vessels, including an unusual flagon. This material is closely associated with Gwithian style wares, imported Mediterranean ware and Grass-marked ware (qv) that suggests a date within the sixth century AD.

The excavation by O'Neil in 1950 on Mays Hill, St Martins (Thomas 1985), produced eight sherds of E-ware from four vessels (Thomas 2005), while a further three sherds including a rimsherd occurred as chance finds from further down slope from the excavated site in 2010 (C Thorpe, pers comm). Other sites that have produced E-ware are two sherds from Dolphin Town, Tresco (Taylor and Johns 2009-10), a single chance find from Dial rocks, Tresco, four sherds (3 vessels) from Hillside Farm, Bryher (Johns 2002-3) and a single sherd from Veronica farm, Bryher (Ratcliffe 1991). Two sherds (including a lid) came from excavations in 1977 at Bar Point, St Mary's (Ashbee 1978; 1996; Thomas 1981; 2005).

Sometime in the late seventh or early eighth centuries AD there appears to have been a major cultural change in both Scilly and Cornwall which saw the introduction of a new pottery production technique involving the use of chopped grass to prevent adherence to surfaces prior to firing; this left clear vegetation marks on the bases and sides of vessels. This is termed Grass-marked ware. On Scilly this ware is found in both granitic and gabbroic fabrics, suggesting that although some may have been made locally, other pieces may have been brought in from the mainland, although there is the possibility that gabbroic clay was imported to supplement the local material. No petrographic work has been done on the material from Scilly.

This ware has a limited range of forms in platters, dog dish bowls, cooking pots and bar-lug cauldrons. These mark a dramatic change in eating habits, with a turning away from the individual dining and serving sets common in the Roman period and changing to a more restrictive set of vessels that seems to reflect a more communal way of dining.

As noted above, the earliest date obtained for grass-marking as a technique (although on Gwithian Style vessels) has been obtained from the midden at Tean. This has led to the suggestion that this technique may have originated in the islands (Thomas 2005). For Grass-marked wares, from material recovered during excavations at Penhale Round on the mainland, a radiocarbon date of cal AD 540-660 (NZA-32927) derived from residue on a platter was obtained (Nowakowski and Johns, forthcoming). This is the

earliest known date for Grass-marked ware suggesting an introduction of this ware somewhere in the seventh century. The earliest date for the Grass-marked wares from Gwithian is cal AD 540-660 (SUERC-6158) with cal AD 650-780 (SUERC-6160) being the latest, indicating that adoption of the bar-lug element must certainly have been introduced prior to the end of the eighth century AD (Nowakowski *et al* 2007).

A further radiocarbon date of cal AD 856-996 was obtained from Gunwalloe where a possible new fifth vessel form has been identified (Wood 2010), while a determination from Nancemere, Truro (Wk-21361), gives a date of cal AD 1010-1160 (Gossip, forthcoming b). Two samples taken from the medieval rubbish pit found at Lower Town, St Martin's, produced dates of cal AD 1020-1270 and cal AD 968-1170, which are the latest so far recorded (Ratcliffe 1997). This corresponds nicely with dendrochronology dates of AD 1080 and AD 1155 that have been obtained in Waterford in southern Ireland (Gahan and McCutcheon 1997). Here the use of Grass-marked ware, unique to one house in the Hiberno-Norse coastal longphort, provides the first evidence of a link between Cornwall and Ireland and the exportation of this style outside Cornwall and the Isles of Scilly.

The largest collection (over 400 sherds) comes from East Porth, Samson (Neal forthcoming a). Found in both granitic and gabbroic fabrics, only cooking vessels and platters were present within this assemblage. The excavation at Tean (Thomas 1985; 2005) produced a significant collection but this contained some unusual forms, including what appear to be Gwithian Style vessels (especially jars). Platters were present. Grass-marked ware was found in a midden overlying the first-century cist grave cemetery at Porthcressa, St Mary's (Ashbee 1974). A significant collection (127 sherds) came from the excavations at Halangy Down, where the vessels included platters, cooking vessels, and bar-lug cauldrons (Ashbee 1996).

The Isles of Scilly Electrification Project recorded several sites that produced this material. The largest collection came from the vicinity of Higher Town church, St Martin's, some 32 sherds being recovered including platters, cooking vessels and bar-lug cauldrons (Ratcliffe 1991). Further material came from Lower Town, St Martin's, Dolphin Town, and the Abbey on Tresco, Southward on Bryher, and the Turks Head, Higher Town, Troytown Farm, Middle Town and from middens at Porth Killier and Periglis, all on St Agnes.

Some 22 sherds were recovered from the 2003 excavations at Dolphin Town, Tresco (Taylor and Johns 2009-10), but the only diagnostic pieces were a couple of cooking vessel rims. A single unstratified sherd was found associated with one of the settlement trenches (Trench 7) opened to investigate the environs of the Bryher Iron Age sword and mirror cist burial (Johns 2002-3).

Finally, some 55 sherds were recovered from midden material in a rubbish pit at Lower Town, St Martin's. There were a minimum of nine vessels present, all apparently cooking vessels. Limpet shells from the midden were radiocarbon dated to AD cal 656-870 (GU-3411, 1280 ±50), while sheep or goat's bone from the same midden was dated AD cal 898-1069 (OXA-4063, 995 ±55). This is an important collection, the date for which compares with the latest date of cal AD 1010-1160 for material from Nancemere on the mainland (Gossip, forthcoming b).

From the excavation at East Porth, Samson, there were some 22 sherds of unidentifiable pottery from early-medieval contexts in unknown fabrics, including some which are granitic. It could be that they are from the mainland, but it is also possible that they may be foreign imports from the continent (Neal forthcoming a).

7.5.4 Worked bone

The 1971 excavations at East Porth, Samson, recovered a decorated bone plate, a semi-circular strip of decorated bone and a cut bone, possibly a spindle whorl (Neal, forthcoming b).

7.5.5 Flint

Flints from the level associated with the timber building at East Porth, Samson, included a platform core, three end scrapers, a fabricator, and various waste flakes (Neal, forthcoming d).

7.5.6 Industry

Evidence for iron smelting in the form of slags and the remains of a possible furnace were found at East Porth, Samson (Biek, forthcoming).

7.5.7 Subsistence

As in earlier periods our knowledge of the Islands' early medieval economy comes from excavated sites and in particular middens. The assemblage recovered from the well-sealed midden investigated during BT trenching at Lower Town, St Martin's in 1992 is particularly important because animal bones of early medieval date are extremely rare in Scilly and plant macrofossils of this date had not been recovered before (Ratcliffe 1997).

Plant remains

The density of charred plant macrofossils in the Lower Town midden sample was low (5 per litre of soil), although this may not fully reflect the original contribution of plants to the diet. Cereals are represented by wheat (*Triticum* sp.) and barley (*Hordeum* sp.) and the other charred seeds (vetches, knotgrass, bedstraw and brome) could all have grown as arable weeds. With such a small assemblage it is not possible to comment on whether it represents a crop processing accident or ash from a domestic fire. All the weeds could have grown in Scilly and the crops were probably grown locally. Barley, in particular, tolerates salt spray which would have been inevitable in Scilly. The cereal grains are not well enough preserved to suggest which forms of wheat or barley might be represented, and chaff, apart from grass culm nodes, is not preserved to assist identification further. On mainland southern England, hulled six-row barley is most common in deposits of this date and free threshing wheat (rivet or bread wheat type) is also found (Ratcliffe 1997).

The early medieval part of the midden at East Porth, Tean, consisted entirely of oats but because of the lack of chaff it is unclear whether this was a crop or a weed (Ratcliffe and Straker 1996, 13).

Animal remains

Fish, seabirds and shellfish were the major constituents of the Lower Town midden, although it is likely that the plant component may be unrepresentative of what was discarded originally. Shell and animal bones are normally poorly preserved in acidic granite soils but the incorporation of calcareous sands in some coastal sediments in Cornwall and Scilly means that the soils are not acid and bone and shell, especially in the concentration found in the midden pit, do not decay. However, fragile uncharred plant tissues are only preserved where deposits have remained wet or waterlogged since they accumulated. The midden was dry and the only surviving remains of plants were occasional flecks of charcoal and a few charred seeds, meaning that the information did not reflect the probable importance of leaf, root or stem vegetables, and fruits and seeds (Ratcliffe 1997).

The small bone assemblage in the midden reflects the exploitation of marine resources, with little evidence of domesticated species. Seal (*cf* grey seal *Halichoerus grypus*), ovicaprid (*Ovis* sp. domestic/*Capra* sp. domestic), shag (*Phalacrocorax aristotelis*), razorbill (*Alca torda*), puffin (*Fratercula arctica*), black sea bream (*Spondylusoma cantharus*), thick lipped grey mullet (*Chelon labrosus*), ballan wrasse (*Labrus bergylta*), conger eel (*Gadidae* indet) and two frog (*Rana* sp.) tibia shaft fragments were identified. The seal bones consisted of an immature forelimb as well as a porous tarsal from a hind limb showing knife-cuts. In the past seal was classified as fish, which

meant they could be eaten on fish days and was also put into pottages. The only bone from a domesticated animal was part of a small ovicaprid (i.e. sheep or goat) calcaneum and the shaft of a small radius (Ratcliffe 1997).

The bird species represented could all have been eaten: shag and razorbill trapped from their breeding colonies on the cliffs and puffins from their nesting colonies in burrows. The shag bones include part of a single (?) mature individual and at least five immature birds. One of the femora of the mature bird shows two knife cuts on the proximal surface. The razorbill bones are all mature, except for one porous tibiotarsus, and parts of at least three birds are present. The puffin bones are also all mature and from at least three birds. The unidentifiable vertebrae and phalanges are also likely to belong to these three species, which are known to have been exploited by island and coastal communities in the past. Puffins were also classified as fish, which meant they too could be eaten on fish days (Ratcliffe 1997).

The fish are characterised by a common habitat preference for inshore waters. Black sea bream, ballan wrasse and conger eel prefer rocky coasts, while thick lipped grey mullet, although preferring inshore waters, is also found on sandy bottoms. These could all have been caught on lines; conger eel is also caught in traps. A single gadoid vertebral fragment may be cod (*Gadus morhua*). Remains of ballan wrasse represent at least three individuals, one of which was probably about 0.6m long and the other two smaller (Ratcliffe 1997).

Limpets dominate the assemblage of marine molluscs, as might be expected. Scallops and cockles are also present as well as single examples of two other species (*Callista chione* and *Monodonta lineata*, thick top shell). Scallops, limpets and cockles would all have been collected for food and the other two species could have been gathered accidentally with them. It is not known whether they too would have been edible. It is likely that a variety of methods would have been used to collect the shellfish. The scallops and the *Callista* both occur from just below low water. Scallops inhabit water up to 100 fathoms deep, although they are most common in 10-15 fathoms (18-46m) of water, just inside or just away from areas of strong currents (Mason 1983). *Callista* occurs in up to 70 fathoms of water. The simplest way to catch scallops in shallow water is to use a hand net. However, the 'traditional' method is to use a dredge. This involves towing a metal frame with a net bag attached to it along the sea bed. Mason (1983) cites references to fore-and-aft rigged sailing vessels towing dredges in the English Channel in the 1920s, and it is possible that a simplified system was used in the medieval period. Collecting by net or dredge would inevitably mean that other shells, such as *Callista*, were gathered from time to time. In addition to these methods of capture, people could easily have dived for scallops in shallow water. Cockles can be collected from mid tide to just below low water, top shells from upper to middle shore and limpets from the upper to lower shore (Ratcliffe 1997).

As well as the marine molluscs, fragments of crab claws were retrieved from the midden sample. These consisted of seven claw tips plus other fragments and represented a minimum of one individual. The species of crab was not identified (Ratcliffe 1997).

Land snails were also found as a result of sieving the midden sample. Most of the taxa (*Cochlicopa lubrica*, *Vitrea crystallina*, and *Aegopinella nitidula*) will tolerate a range of conditions, such as woods, hedges and grasslands, although in general they prefer damp situations. *Capaea* also occurs in sand dunes and so tolerates dry conditions. *Discus rotundatus* tolerates moist sheltered places of all kinds and, with the taxa noted above, could well have lived in the pit amongst the rubbish. *Pupilla muscorum* is typical of dry calcareous places including coastal sand dunes and would have been common in Scilly. *Ceciloides acicula* is a burrowing species and may not be contemporary with the rest of the snails. It, too, is typical of calcareous soils. A context such as a midden pit is a rather artificial environment which may include a range of microhabitats suitable for different species and interpretation of precise environmental conditions is not, therefore, possible.

The upper part of the midden at East Porth, Tean, dating to the seventh and eight centuries AD, contained more fish species but less bird ones than the lower, late Roman, layers of the midden. There were also more mammals, with deer, the Scilly shrew and Pallas' vole (Ratcliffe and Straker 1996, 13).

7.6 Transport

No evidence of boats or ships of this period is known from Scilly, although the presence in Scilly of ceramics from France, North Africa and the Mediterranean attests to the existence of trade routes and therefore maritime activity, at the very least to Cornwall and possibly further afield (Johns *et al* 2004).

The most obvious feature of the Nordic tradition of boatbuilding during this period is the use of overlapping planking (clinker). This method of boat building starts with the hull planking being fastened together (usually using iron clench nails or rivets). The internal framework is added afterwards. Hence this type of construction is sometimes called "skin first". These vessels are double-ended, with overlapped split oak strakes fastened to each other with iron nails, propelled by oar and single square sail. An early example is the late sixth to early seventh century Sutton Hoo ship (McGrail 2001; Hutchinson, 1998).

7.7 Social relations

Scilly appears to have been unaffected by sporadic Anglo-Saxon conquests in East Cornwall. The story that Athelstan (King of Wessex AD 935-939) made a short visit to the islands to deal with Scandinavian raiders is probably legendary, as are connections with the mythical British king, Arthur, or Olaf Tryggvason, King of Norway, Sweden, Denmark and Iceland, who the 'Heimskringla' saga records visited Scilly at the end of a four-year long raid and was converted to Christianity there (Bowley, 1964, 34).

The excavated settlements - St Helen's, East Porth, Tean and East Porth, Samson - are all ecclesiastical sites and we have very little knowledge of secular life in Scilly during this period.

7.8 Religion and ritual

An important result of external trade or other cultural contacts was the introduction of Christianity, probably from Cornwall, France or the Mediterranean, during the late fifth or early sixth centuries.

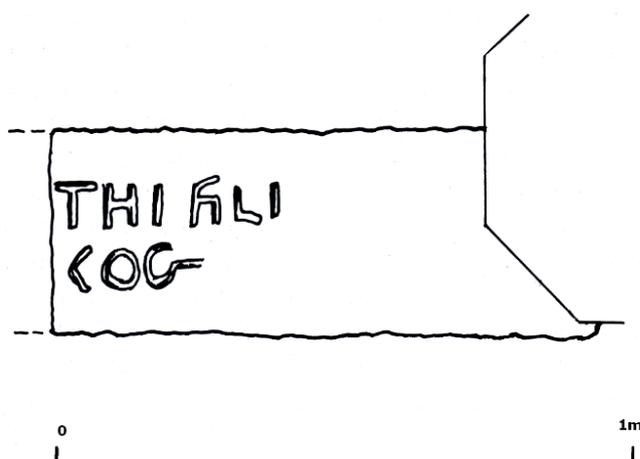


Fig 7.3 Inscribed tombstone in Tresco Abbey Gardens (after Thomas)

The earliest evidence for Christianity in the Islands is a sixth-century inscribed tombstone which has been re-used as a threshold stone in the south doorway of Tresco Abbey (Fig 7.3). Broken at some time in the past, it was originally part of an upright pillar, possibly associated with one of the stone-lined graves in the corner of the Abbey Gardens. Its surface is very worn but it is possible to discern part of Latin inscription

...THIFILI...COGI, the last element could also be interpreted as COGVI, COCI, COGNI, or COLINI (the first inscribed sideways). The inscription is a standard formula meaning 'son of' with Latinised British personal names before and after FILI (Macalister 1945, 462-4; Ratcliffe and Johns 2003, 54).

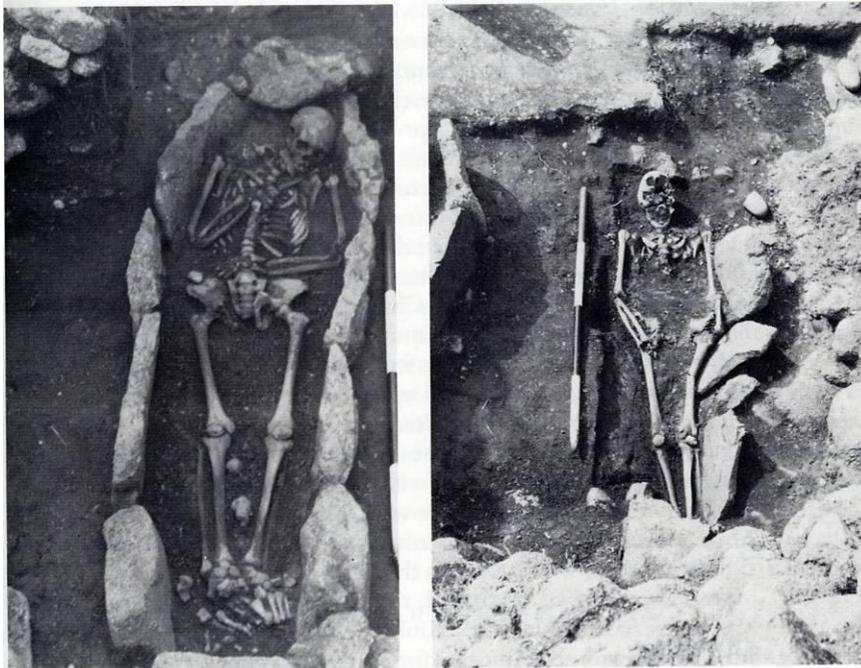


Fig 7.4 Two of the Early Christian burials from Tean (photo: Vincent Megaw)

The stone may have been associated with a nearby Early Christian cist cemetery, one of five identified in Scilly which survive below enclosed land, heathland, dune sand and existing settlements.

Although these cemeteries are superficially similar to Romano-British ones, their graves are longer, narrower and coffin-shaped, aligned roughly east-west and contain extended skeletons facing east. They are occasionally covered by simple kerbed cairns or marked by small stones, like the sub-circular slab with a simple incised cross found in one cemetery. Early medieval cemeteries or burials have been found at St Helen's, East Porth, Samson, East Porth, Tean (Fig 7.4), and in Tresco Abbey Gardens.

7.8.1 Chapels and hermitages

Associated with the graves of the dead are the places where the living worshipped, simple rectangular chapels of the eighth to tenth centuries, the remains of which are found on St Helen's, Tean, and Chapel Brow, St Martin's. Others may once have stood on St Mary's, Samson, St Agnes and Tresco, where Early Christian cemeteries have been recorded. Traditionally thought of as insular hermitages, these chapels were reinterpreted in the late 1980s as the earliest parish churches for Scilly, sited near to contemporary settlements (Ratcliffe 1989), although this interpretation was based on Thomas' model for sea level rise.

Eight sherds of early medieval pottery were found in a limpet midden east of the main entrance to the Tresco Abbey gardens (adjacent to the site of the British Airways ticket hut in existence there in 1985). These tenth to eleventh century sherds are further evidence for an early medieval establishment pre-dating the twelfth century St Nicholas' Priory. The pottery came from a limpet midden but this may not itself be of early medieval date since post-medieval sherds were also found in it.



Fig 7.5 St Helen's chapel (photo: Katharine Sawyer)

The plans of the earliest chapels and oratories in Scilly and Cornwall are consistently rectangular - 'double-square' - in plan, 4m by 2m, for example, and have doorways on the south side, not the west as in Irish foundations of the same period (Thomas 1978, 252).

The site on St Helen's was probably founded sometime during the eighth to tenth centuries by St Elidius, reputedly a British bishop and the son of a king. The earliest phase of the site on the south-facing slope of St Helen's comprised a rectangular 'Oratory' or chapel (Fig 7.5), a circular living-cell or hut and up to six Christian graves within a 0.1 hectare enclosure bounded by a rough wall (O'Neill 1964; Thomas 1985, 181).

At East Porth on the neighbouring island of Tean, a multi-period site was investigated by Thomas in 1956 and 1960 (Thomas 1960b). Finds from a hut overlying a Roman and early medieval midden were mainly pottery of fifth, sixth and probably seventh century date, including sherds of an imported Bii amphora, a Biv handled jar and nine class E-ware pots.

During or soon after the occupation of the hut, Christian-type cist-graves were constructed to the east beyond the limits of the midden. Sixteen graves were found during the two seasons of work. Overlying the graves was a small, rectangular stone structure whose internal dimensions, about 4.88m by 2.44m, east-west longer axis and remnant of a south-side doorway indicate that it was a chapel, provisionally dated to the early eighth century and founded by Saint Theona. Thomas suggests that the stone chapel could post-date an earlier wooden structure on the same site, a phenomenon noticed elsewhere in Britain and Ireland (Thomas 1985, 183-6). To the north of the chapel is small sub-circular field which may have originally been the *lann* or ecclesiastical enclosure associated with the chapel (Johns *et al* forthcoming b).

The chapel on St Martin's Head, the eastern summit of Chapel Down, St Martin's, has been mostly robbed of stone but is visible in plan at ground level as a small,

rectangular, east-west aligned structure measuring 5m by 2.4m internally, with a south doorway. It is not associated with a cemetery and it has been suggested that it was a 'lighthouse chapel', a small religious establishment whose duty it was to maintain beacon lights. At least one such chapel is known to have existed on the Land's End peninsula (Adams 1957; Thomas 1985, 186).

A multi-phase Early Christian site at East Porth, Samson was excavated in 1971 (Neal, forthcoming). The sequence of a timber structure superseded by a stone building is similar to that excavated at Tean. The east-west aligned stone building is rectangular in plan with internal measurements of 3.38m and, probably, 1.98m. The doorway is on the north side, perhaps for practical reasons - if it had been on the south side it would have faced into the dune. Consideration of the occupation debris around the house suggests it was a domestic habitation (perhaps that of a hermit) rather than a chapel. A stone bowl in the corner of the room, similar to but smaller than the stone bowl in Room 1 at Nornour, would also suggest a similar purpose (*cf* Butcher 1978, fig 40).



Fig 7.6 Possible stone font from East Porth, Samson (photo: David Neal)

The later history of the site also suggests a religious association, as demonstrated by the presence of three further graves, a wall possibly intended as a boundary to a cemetery and a massive stone basin possibly once used as a font (Fig 7.6), and perhaps originally sited within a chapel. There was no stone building associated with these features, although extending below the present dune to the south of the site are a series of timber structures and associated levels (Neal, forthcoming).

In legend, the Isles of Scilly were renowned for their hermits, as demonstrated by the story recorded in the 'Heimskringla' saga of Olaf Tryggvason and the soothsayer in the late tenth century (Fig 7.7; Bowley 1945, 34-38).

By the end of the early medieval period Christianity was firmly established in Scilly but it would have assimilated some old pagan beliefs. For example, St Warne's holy well on St Agnes is probably an early medieval structure, but the tradition of attributing supernatural powers is a survival from pagan times.



Fig 7.7 Olaf Tryggvason and the soothsayer (Peter Nicolai Arbo)

7.9 Human osteoarchaeology

Early medieval human bones have been found at St Helen's (O'Neil 1964), East Porth, Samson (Keepax forthcoming), and Tean (Thomas 1960b). Of these the bones from Tean have been most extensively examined (Fig 7.4).

Sixteen graves were found on Tean, and the skeletons included one adult woman and four young children, seemingly making it a lay cemetery (Thomas 1985, 184), although the female skeleton could have been of a nun or perhaps St Theona herself, so this is not necessarily the right explanation. Two of the male burials were those of lepers, and the disease is likely to have been contracted in a Mediterranean or Middle Eastern land (Thomas 1985, 198; Brothwell 1961, 323-4, pl VI). Another of the skeletons showed healed amputations of the left hand and right foot, possibly the result of a punishment (Mays 1996, 109).

The bones from St Helen's were very friable and only the remains in the altar grave in the chapel were examined. The grave contained two burials placed side by side. One was an adult male, not less than 40-45 years old, with a powerful musculature and a full set of healthy teeth but with severe functional crown attrition. The fragments of the second skeleton, which was probably also male, were excessively decayed and friable but showed similar functional crown attrition. The skeletons probably dated to the early years of the Christian era (O'Neil 1964, 68).

Fragments of the vertebrae, sacrum, pelvis, femora and skull of an adult male were present in grave III at East Porth, Samson. The preservation of the bones was poor, with some surface erosion (particularly of the skull). Two loose teeth were present showing a medium amount of wear with some exposure of the dentine but no evidence of caries or calculus deposits. The lower incisor showed very slight hypoplasia of the enamel. The sacro-iliac joint showed roughening and lipping, probably due to a medium degree of osteo-arthritis. The severity of this condition suggests that the individual was probably over thirty years old at the time of death. The skull showed evidence of possible ante-mortem injury, a deep cut mark, although there was no evidence of fracturing of the bone associated with the injury and the cut did not seem to have penetrated to the interior of the skull. This injury is comparable to that which

might be caused by a blow from a sharp object and it occurred probably only a short time before death (Keepax, forthcoming).

7.10 Discussion

Islands appear to have been sought after for specific purposes among the adherents to the new Christian Church. The early Christian *mentalité*, closely aligned with the long held beliefs of the natives, found powerful magico-religious associations with places on the fringe of the Christian world. In a number of publications Tom O'Loughlin (1997; 1999; 2000) has explored the attraction of the islands on the fringe of the world known to early Christianity. O'Loughlin makes a distinction between the known seas of the Mediterranean, where familiar islands were located, and the sea surrounding the continents, which was the *Oceanus*, a threatening place where the tides mimicked the breathing of a living animal, possibly the primeval 'abyss', a threatening place to be treated with caution. The ocean could be full of demons, and in this it was not unlike the desert spaces of the known world. Monks and hermits were attracted to these places as it was seen as their duty to do battle with the demons. An earlier use of deserts for this purpose appears to have been translated to the ocean in the west. So the ocean as a metaphorical desert hangs strongly in allusions to the monastic heritage of ascetic isolation derived from the Egyptian desert, the inversion of the island/land and sea/water dichotomy is found in the oasis/water and desert/land model, water and sand providing the conditions for otherness and evil.

The unknown spaces of the ocean also provided mappers of the world with conceptual spaces in to which they could place known but unlocated places. So, for example, the Garden of Eden was located on an island in the *Oceanus*, as were other 'promised lands'. According to O'Loughlin (1999) this is part of the point of the, for him, allegorical tale provided by the voyage of St Brendan, who on a seven-year voyage battles demons and finds marvellous islands. At this date, in the early medieval period of western Europe, it is clear that islands and headlands on the larger islands of the Atlantic Archipelago were being sought out in 'pursuit of a desert' (Dumville 2002). In considering the community of monks residing in the island monastery of Iona, O'Loughlin (1997) notes that they had found their desert fastness, as imagined, but also finds in *Vita Columbae* (The Life of St. Columba) that the monastery was spread over a number of islands, that boat trips were regularly taken between them and indeed much further asea, with craft going to and arriving from the mainland, Skye, the Orkney Islands, Ireland and France, achieved by rowing and sailing. So, although Horn, White Marshall and Rourke (1990, 3) find that '*it is among the stone ruins left on the Atlantic islands by small colonists of Irish monks that we find the boldest parallels to early Egyptian monasticism in Europe*', it is also the case that the established monasteries on such islands were connected to distant places, and ultimately to Rome and Jerusalem.

Clearly then for a thousand years prior to the fifteenth century islands were regarded as suitable locations for ascetics in monasteries and hermitages. Metaphorical deserts were also provided by forests, deep valleys and mountain peaks; islands then did not have a monopoly on use for this purpose, but Scilly does appear to have been sought out for this purpose (Thomas 1985, Chapter 7), and, perhaps paradoxically, provides an indication of widespread off-island contacts at this time.

7.11 Scientific dating

7.11.1 Radiocarbon dates

The 22 radiocarbon determinations listed below in Figure 7.8 have all been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period to which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they appear.

Lab Ref	¹⁴ C age BP	Cal AD @ 95%	Site	Context	Reference
Wk-5693	1650 ±60BP	255-540	Porth Coose, St Agnes	Peat deposit	Ratcliffe <i>et al</i> , forthcoming
GU-5230 (CALIB 4.1)	1600 ±60	264-595	Crab's Ledge, Tresco	Column VI (basal 20mm of upper peat)	Ratcliffe & Straker 1996, 128
OxA-4699	1605 ±50	337-570	East Porth, Tean	Charred seeds (<i>Hordeum sp.</i>) from lower half of midden – layer (3)	Ratcliffe & Straker 1996, 98
OxA-23862	1632 ±28	350-540	Old Town Bay, St Mary's	Bulk: mix of herbaceous and Monocot stems (humic acid fraction) 4-5cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-32916	1620 ±30	380-540	Porth Coose, St Agnes	Dicot stem fragments, 8cm below surface of intertidal peat	Marshall <i>et al</i> 2012
GU-5062 (CALIB 4.1)	1570 ±50	394-600	Crab's Ledge, Tresco	Sample 3 from top 10mm of intertidal peat	Ratcliffe & Straker 1996, 128
SUERC-32993	1595 ±30	400-550	Crab's Ledge, Tresco	Bulk: organic sediment with ?Monocot roots (humic fraction)	Marshall <i>et al</i> 2012
GU-5058 (CALIB 4.1)	1480 ±80	407-676	Crab's Ledge, Tresco	Sample 2 from basal 10mm of exposed peat	Ratcliffe & Straker 1996, 128
OxA-23860	1507 ±29	440-620	Porth Coose, St Agnes	Plant fragment: Monocot stem, 4cm below surface of intertidal peat	Marshall <i>et al</i> 2012
Wk-5694	1510 ±50BP	432-639	Porth Coose, St Agnes	Peat deposit	Ratcliffe <i>et al</i> forthcoming
Wk-5696	1490 ±60	432-651	Old Town Bay, St Mary's	Top of lower peat deposit	Ratcliffe and Straker 1998
OxA-23827	1469 ±25	540-650	Old Town Bay, St Mary's	Bulk: mix of herbaceous and Monocot stems (humic fraction) 4-5cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-39444	1437 ±38	560-658	Lower Moors, St Mary's	Peat	Perez forthcoming
SUERC-39447	1378 ±36	598-689	Lower Moors, St Mary's	Peat	Perez forthcoming
SUERC-32927	1390 ±30	600-670	Crab's Ledge, Tresco	Bulk: organic sediment with ?Monocot roots (humic acid fraction)	Marshall <i>et al</i> 2012

Lab Ref	¹⁴ C age BP	Cal AD @ 95%	Site	Context	Reference
OxA-4698 (CALIB 4.1)	1355 ±50	600-774	East Porth, Tean	Charred seeds (<i>Aveda sp.</i>) from upper half of midden – layer (3)	Ratcliffe & Straker 1996, 98
GU-3411	1280 ±50	656-870	Lower Town, St Martin's	Limpet shells from midden	Ratcliffe 1997
GU-2569	1030 ±50	892-1153	Big Pool, St Agnes	Lower band of peat & organic sediment	Scourse 1986
?	998 ±57	896-1170	Old Town Bay, St Mary's	Upper peat deposit	Ratcliffe & Straker 1998
OxA-4063	995 ±55	898-1169	Lower Town, St Martin's	Ovicaprid bone from midden	Ratcliffe 1997
SUERC-39443	996 ±35	982-1056	Lower Moors, St Mary's	Peat	Perez forthcoming
GU-3412	880±50	1034-1252	Lower Town, St Martin's	Human bone from burial	Ratcliffe & Straker 1996

Fig 7.8 List of early medieval radiocarbon dates

7.11.2 OSL ages

Optically Stimulated Luminescence (OSL) dating was carried out on submarine and intertidal deposits recovered during the Lyonesse Project in 2009 and 2010. Samples from Old Town Bay, St Mary's and Bathinghouse Porth, Tresco date to the early medieval period (Roberts 2012).

Location	Lab no.	Context	Material	OSL Age	Calibrated date (95% confidence)
Old Town Beach, St Mary's	184/LPOT-1A	0.15 ±0.01m below surface of intertidal peat	Quartz	1400 ±90	AD 430-790
Bathinghouse Porth, Tresco	184/LPTR-4B	8.5-9.5cm below surface of inte-tidal peat	Quartz	1380 ±110	AD 520-740

Fig 7.9 List of OSL Ages expressed as years before AD 2010, rounded to the nearest 10 years

8 Medieval (1066 – 1547)

Edited by Charles Johns with contributions from John Allan, Eric Berry, Kevin Camidge, Dan Charman, Ralph Fyfe, Jacqui Mulville, Marta Perez, Fraser Sturt and Sue Watts.

8.1 Introduction

During the medieval period the administration of Scilly was split between Tavistock Abbey which presided over the northern islands, and secular proprietors of St Mary's and St Agnes. Piracy and shipwreck are recurring themes throughout the period. Medieval remains include St Nicholas Priory church on Treesco, the second phase of the ecclesiastical complex on St Helen's and Ennor castle on St Mary's. The main characteristics of Scilly's medieval resource are summarised in this chapter.

8.2 Landscape and environmental background

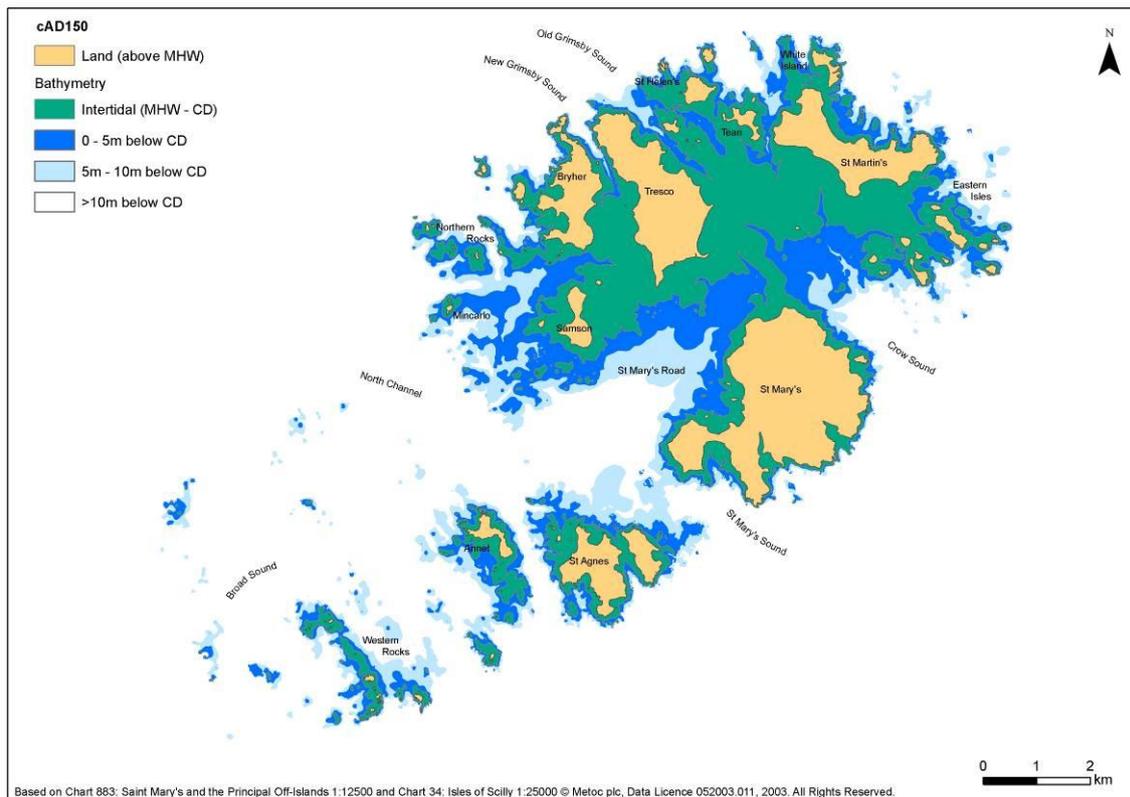


Fig 8.1 Inferred submergence model c1066 based on data from the Lyonesse Project (Charman et al 2012)

The Isles of Scilly were often regarded vaguely as one island during the Middle Ages (Orme 2010, 266), and according to Thomas (1985) model for sea level rise the northern islands were still joined at low water until the early Tudor period. However, as discussed above, the results of the Lyonesse Project indicate that separation of the islands had occurred by the end of the Early Bronze Age (Charman et al 2012). Two charters dating to between 1140 and 1175 refer to the islands of *Rentemen* (possibly Treesco and Bryher, still connected at low tide), *Nurcho* (possibly St Martin's), *St Elede* (St Helen's), *Sampson* and *Tean* (Orme 2010, 266), indicating that the present pattern of islands had indeed largely formed by that time. Further work is required to reconcile Thomas' coastal place-name evidence with new environmental data.

There is comparatively little environmental data from this period. A peat deposit at Old Town Bay, St Mary's sampled during coast protection works in 1997 which suggests

herb rich grassland with background of coastal indicators and aquatic plants indicating standing water (Ratcliffe and Straker 1998).

8.3 Chronology

There are only five radiocarbon dates for medieval Scilly (Fig 8.19). However documentary sources do provide a chronological framework for the period. These include the thirteenth century *Orkneyinga Saga*, the annals of Tavistock Abbey and various pipe rolls and charters.

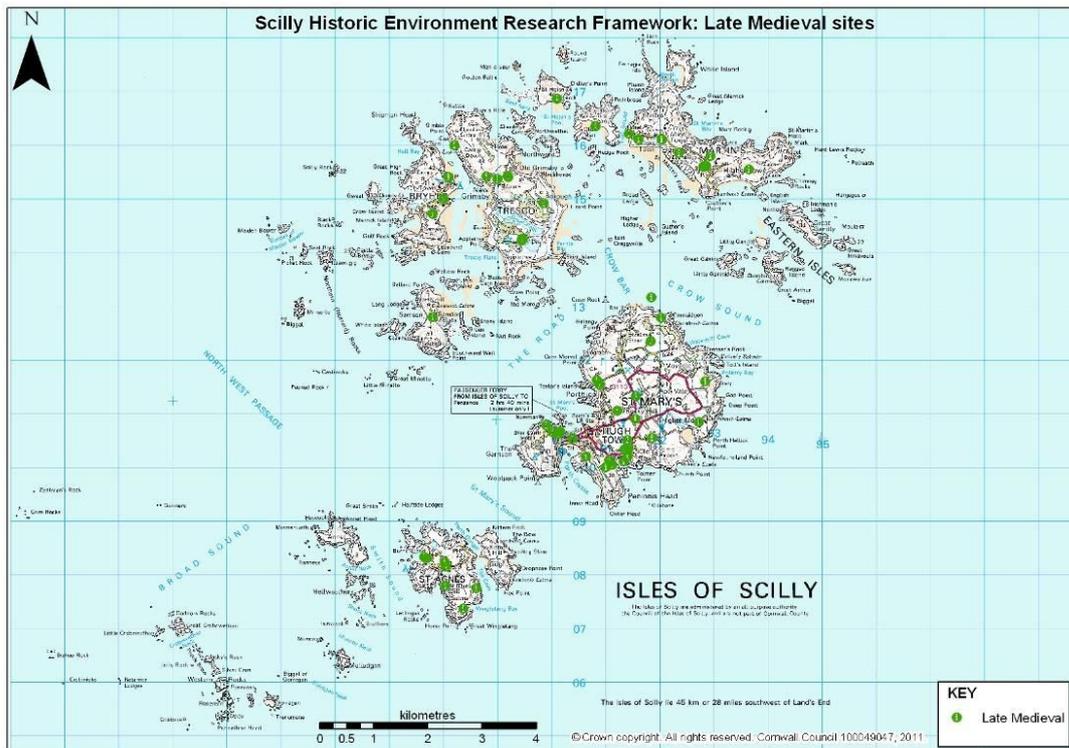


Fig 8.2 Distribution of medieval sites recorded in the Cornwall and Scilly HER

8.4 The material world

8.4.1 Settlement

The main settlement on St Mary's, known in the medieval period as *Ennor*, was at Old Town, where secular rule was based. Protected by a castle, first mentioned in 1244, and not visible from the open sea, the village was at the end of a bay that deep-water ships could not penetrate. The harbour, with its medieval quay (Fig 8.3) was then known as *Porthenor*, 'the porth or landing-place for Ennor', and possibly the settlement of *Maríuhöfn* plundered by Vikings in c1151 (Thomas 1985, 210).

Though Old Town (described by Leland in c1542 as a '*poore Town*') was the main settlement in the Islands, the location of others is revealed by documentary and place-name evidence and medieval pottery scatters: Churchtown and Lower Town on St Martin's; Old Grimsby, Borough and Dolphin Town on Tresco (as well as around the priory and New Grimsby, which is of later medieval origin); Norrard and Southard on Bryher; Periglis and Middle Town on St Agnes; Trenoweth, Helvear, Holy Vale, Normandy and probably most of the other existing farms on St Mary's (Chope 1918, 23; Ratcliffe 1995, 6).

Examples of medieval strip fields are rare in Scilly - the best being that south of the road at Lower Town, St Martin's clearly shown on the 1888 OS map but since subdivided for flower cultivation. The generally more irregular pattern of most anciently

enclosed land indicates that there was no large scale laying out of medieval strip fields, but instead existing field systems continued to be used and modified. It is tempting on the basis of this and artefactual evidence to push the origin of most modern settlements back into pre-medieval times, perhaps as far back as the Iron Age. The sinuous character of many of the roads and trackways connecting these settlements suggests that they too have an ancient origin, having been laid out during medieval (or earlier) times (Ratcliffe 1995, 6).



Fig 8.3 The medieval quay at Old Town (photo: Cornwall Council)

The hermitage on St Helen's is the only medieval site to have been excavated in Scilly (O'Neil 1964), so we do not have clear understanding of the character of medieval settlement in the Islands. Large quantities of finds were recovered during the 1985 off islands electrification project watching brief and the possible location of the medieval settlements of *Sturtom* and *Bantom* identified on Bryher (Ratcliffe 1991). Detailed evaluation on the site of the new Five Islands School Base at Carn Gwaval, St Mary's, between Ennor Castle and Old Town Church, did not reveal any evidence for medieval occupation other than a few fragments of pottery (Johns *et al* 2010).

8.4.2 Subsistence

The midden deposit in the rubbish pit at Lower Town, St Martin's is discussed above (section 7.5.6). Sheep or goat's bone from the same midden was dated AD cal 898-1069 (OXA-4063, 995±55) and is probably indicative of the level of subsistence at the beginning of the medieval period.

Rabbits were probably introduced to Scilly early in the twelfth century and by the middle of the century Richard de Wika was obliged to grant tithes on rabbits captured in Scilly (Thomas 1985, 201). Another document of the same time refers to the gifts of areas of ground for turf cutting from peat beds for winter fuel (*ibid*, 202).

Leland, c 1542, noted that it was a "*The Ground of this Isle [St Mary's] berith exceedingly good Corn, insomuch that, if a Man do but cast corn wher Hogges have rotid it wyl cum up*" (Chope 1918, 23).

8.4.3 Artefacts

Metal

Coins

A Richard II penny from hut 1 on St Helen's, struck before 1387 (Rigold 1964). A French gold coin in good condition was found on the beach to the west of Innisidgen in 2002. The coin has been identified as an *ecu a la couronne* from the reign of Charles VI (1380-1422) and was minted in Paris (Cornwall and Scilly HER).

Bronze

A buckle-plate with traces of gilding, a fragment of gilded, thin bronze band, a bolt of a small barrel padlock and the rim of a cauldron from St Helen's (Dunning 1964). The rim of a bronze cauldron, probably twelfth century in date, was found near Old Town and acquired by the Isles of Scilly museum in May 1975 (Cornwall and Scilly HER).

Copper

A copper pilgrim's medallion with rampant lion relief, with traces of gilt on the upper portion and blue enamel around the line, possibly from Ennor Castle, held at the RCM.

Iron

The rim of a cauldron from St Helen's (Dunning 1964).

Lead

A net sinker for use in fishing and part of a window light with a fragment of glass adhering from St Helen's (Dunning 1964).

Ceramics

In considering the overall state of ceramic research in this period, reference is made in this assessment to the *South-West Archaeological Research Framework* (Webster (ed) 2008). The Medieval Pottery Research Group's report *Research Framework for Post-Roman Ceramics* (2011), presented on-line at <<http://mprgframework.info/>>, was in the course of publication as the present document was prepared; it was examined by John Allan in draft form prior to final publication.

This assessment is based on a review of all the published and grey literature relating to the medieval and later pottery of Scilly by John Allan, followed by an attempt to examine all the ceramics of this date from the islands which were accessible at the time of writing. It has entailed rapid re-examination of all the material in the Isles of Scilly Museum (IOSM), the Royal Cornwall Museum, Truro (RCM), and at the offices of Historic Environment, Cornwall Council, the first repository holding most of the material. Although an effort was made to view ceramics from wrecks and one private collection of such material was visited, coverage of this important resource is inevitably very patchy.

The medieval and post-medieval ceramics of Scilly have attracted far less study and publication than the islands' collections of prehistoric, Roman and early post-Roman pottery. In this regard the situation on the islands mirrors that throughout the rest of Cornwall, where only a handful of substantial reports have been published on the medieval pottery of the county in the last 30 years, and even less work has taken place on the county's post-medieval pottery in the same period. It would perhaps be unfair to describe the state of study throughout most of Cornwall as retarded, but appreciably less work has been carried out on later medieval and post-medieval pottery in this area than in most other parts of southern England. This situation does not arise from wilful neglect of the later archaeology of the islands but does reflect the distinctive emphasis of archaeological work in the county, with a strong research interest in prehistoric and Early Christian archaeology, alongside restricted opportunities for the kind of work, such as large-scale investigation of urban sites, which provides the best sequences and largest collections of medieval and later finds in many parts of the British Isles.

For the medieval period the best individual site collection remains that from St Helen's, excavated as long ago as 1956 and 1958, published by Dunning (1965) and now stored and displayed at IOSM. This material has not been quantified but the collection is not large; it amounts to about three standard boxfuls of sherds. Naturally, Cornish coarsewares form the bulk of the collection, but there is a range of regional imports from Poole Harbour (Dorset sand-tempered jugs), Bristol (Ham Green) and east Devon/south Somerset (redware jugs), alongside about 30–35 sherds of jugs imported from the Saintonge (the English imports not identified in the initial report; for these identifications see Allan 1993).

The collection from King Charles Castle (Miles and Saunders 1970) contains Portuguese coarseware and an important group of maiolica tiles from Seville in arista technique (probably reused monastic spoil of the 1520s) alongside a range of Cornish and North Devon coarsewares.

Elsewhere, the largest body of medieval ceramics is that from the archaeological watching brief during 1985 Electrification Programme, which recovered 421 medieval sherds from at least 285 vessels, found at a surprisingly wide scatter of sites on St Mary's, Tresco, St Martin's, Bryher and St Agnes (Allan 1993). The third collection of any size is that from Dolphin Town, Tresco, studied by Thorpe (2004). Further miscellaneous collections, often unstratified and scrappy, continue to accumulate through watching briefs and casual finds.

Ceramics associated with possible shipwrecks are described below in section 8.5.1.

Bone

A whalebone tool from St Helen's, possibly used as ploughshare (Dunning *et al* 1964).

Stone

A fragment of the gable end of a shrine or font in Purbeck marble from St Helen's. There are two fragments of Purbeck marble built into the wall at Tresco Abbey with similar moulded ornament of flutings and a third fragment, but with slightly different moulding and on a smaller scale, was recorded lying loose on the table tomb in the centre of the ruined abbey nave. That this material was being imported and used for decorative purposes on more than one site in Scilly is of interest as it can be closely dated to the twelfth century (Dunning *et al* 1964).

Also a whetstone from St Helen's (Dunning *et al* 1964). The HER records various other finds of granite and other stone objects and masonry.

Querns continued to be used to grind corn throughout the medieval period. A rotary quernstone was, for example, found during excavation of St. Helens, covering a drain (O'Neil 1964).

Roofing slate

Quantities of fragments of roofing slates were found at St Helen's. They were of varying shades of grey-blue-green and typical of the Delabole quarries on the north coast of Cornwall.

Ridge tiles

Fragments of ridge tiles were found scattered on the slates at St Helen's and probably date to the thirteenth or fourteenth centuries (Dunning 1964).

Plaster

The plaster covering the wall of the east end of the chapel on St Helen's was extremely hard and pure white in colour with straw-like matrix (Dunning 1964).

8.5 Communications, transport and trade

8.5.1 Shipping

The three main medieval ship types were keels, hulcs and cogs (Hutchinson 1998; McGrail 2001). Evidence for the monks being involved in long distance trade is provided by a reference in the *Orkneyinga Saga* (compiled around 1200) to the plundering of one of their merchant ships. Split dried fish and seabirds from the Islands may have been exchanged for Cornish pottery, tin, slate and cloth; Breton salt, linen and canvas; Irish cloaks and wood; French wine and pottery; and Spanish wine and fruit. Pottery was also imported from other parts of southern England; Dorset, Wiltshire, Bristol and Exeter. The priory may have collected tolls for anchorage in St Helen's Pool, probably the chief harbour in medieval times (Ratcliffe and Johns 2003, 15).

In Scilly, the Right of Wreck, taken as vested in the Crown in the first place, passed to Tavistock Abbey in 1114. Pirates and raiders preying on English merchantmen may have been part of the reason behind Henry I's grant, and the monk, Tuold, was instructed to '*keep a firm peace*'. At a later date, between 1140 and 1175, Reginald, earl of Cornwall confirmed the charter with the amendment '*All the wrecks, except whale and a whole ship*' (Larn 1993, 10). This was a valuable and often much wrangled-over commodity which would only have any value if wreck was a reasonably common event.

A return of Edward I's Commissioners of 1275 for the Hundred of Penwith (which included Scilly) stated 'They [the jury] say that John de Allet and the Prior of St Nicholas, Lords of Scilly, take wreck from the sea in those Islands, but they know not by what Environmental background warrant, the ancestors of the aforesaid John and the Prior having done so from the time whereof memory is not'.

By the end of the thirteenth century the monks of Tavistock were interested in withdrawing from Scilly if they could do so with advantage. They petitioned the king saying that they had little power to cope with felonious mariners in times of war and suggested exchanging their lands in Scilly with him for an annual endowment of £60. They pointed out that the Islands had an anchorage for 1000 ships and were frequented by vessels from France, Normandy, Spain and Gascony. The king ordered an enquiry but nothing resulted (Orme 2010, 268).

In 1302, Edward I challenged the Tavistock abbot's right to wreck but the abbot claimed 'the ship-wrecks happening in all the Islands', which he and all his predecessors had 'enjoyed without interruption from time immemorial', except for whales, gold, scarlet cloth, masts and firs, which were reserved for the king (Bowley 1990, 28).

In this period, for the first time, we have evidence of specific shipwrecks in Scilly, the first in 1305 when William le Poer, the king's coroner of the Isles of Scilly, was imprisoned and held to ransom after going to Tresco to take charge of wreck cargo. Several other wrecks are recorded throughout the fourteenth century (Bowley 1968; Johns *et al* 2004) attesting to the fact that shipwreck was not unknown in Scilly. To date, however, no medieval wreck remains have been located in Scilly.

In 1337 the Right of Wreck in Scilly reverted to the crown, when Edward III endowed his son, Edward, the Black Prince, with the Duchy of Cornwall. Between 1342 and 1345 the cargo and materials of three wrecked vessels was plundered by Scillonians, but no other details survive and it is thought that ships of the period were not identified by names anyway, a custom which did not prevail until the fifteenth century (Larn 1999, 8; Larn 2003, 11).

The presence of medieval pottery in Tresco Channel (between Tresco and Bryher) has been known for some time (e.g. Johns *et al* 2004). It was investigated by the Archaeological Diving Unit (ADU) in 2002 but more recently a fine collection of imported pottery in unusually fresh condition – principally Saintonge green-glazed jugs but also

including North French (probably Normandy) red-painted wares and some English wares – was newly reported. John Allan has inspected the entire collection recovered by April 2011. This is a find of great importance, since it seems almost certain that it represents a wreck site, with the possibility of recovering organic finds alongside a fine ceramics collection, and of throwing light on the French trade (?wine trade) into Britain. The ceramics can be dated c 1250–1350 and possibly more closely to c 1300.

The possibility should be considered that another wreck is represented by the small collection of barnacle-encrusted Saintonge pottery from the beach at Porthcressa, St Mary's, now held at IOSM (IOSM 1927). This includes a fine example of Saintonge polychrome pottery and a rare Saintonge horn (as discussed in Le Patourel 1992), both datable to c 1280–1330.

The only comparable find to these two discoveries from the English Channel known to John Allan is the St Peter Port wreck, studied by Duncan Brown and Robert Thomson, which likewise contained Saintonge wares including polychrome sherds and was thought to indicate a ship involved in the Bordeaux wine trade. This possibly betokens direct maritime trade with France rather than transshipment via Cornwall and is worthy of further investigation. Pottery is one of the few trade items which survive well in archaeological contexts. It is probable that it arrived as part of other, more perishable cargos. For instance in the medieval period wine is an important trade item, but other items such as pottery could have accompanied it. Only small quantities of wine were produced in England and wine was imported, principally from Bordeaux. It was a high status commodity mainly consumed by the church and nobility. The measure of a ship's capacity was in fact derived from the number of standard Bordeaux wine tuns (c252 gallons) which a ship could carry (Ransley *et al* 2011).

8.5.2 Pirates and lawlessness

Maritime activity could bring problems as well as benefits; there are a number of recorded instances of this in Scilly during the medieval period. The Orkneyinga Saga records how another Viking, Thorbjorn Clerk '*won a great victory and a massive share of plunder*' by attacking the island of St Mary's, *Maríuhöfn*, in 1151 (Orme 2010, 268). Scilly was called *Syllingar* by the Norse. Some annals of Tavistock abbey record the decapitation of 112 pirates on the Island of St Nicholas in 1209 (*ibid*). A complaint during the reign of Edward III (1327-1377) that a number of Ralph Vyvyan's '*born serfs*' had taken refuge in Scilly suggests that a degree of lawlessness may have existed (or have been perceived to exist). More seriously for the inhabitants, '*In 1342 six-hundred Welshmen .. were drawn by the sea on to that island staying there for 20 days and carrying away £500 worth of crops*'. These Welshmen were apparently on their way to Brittany on the king's service when becalmed in Scilly. Pirates, apparently also a problem, were responsible for the '*impoverishment occasioned to the Abbey of Tavistock*' in Scilly in 1351.

In 1461 Tavistock Abbey and Sir John Colshill, the lay lord of the Islands, appealed to the pope for support. On 10 July of that year Pius II issued a papal bull setting out the grounds for their appeal. Pirates had assaulted, killed, captured, and held to ransom the people of the Islands; clergy, laity, fishermen, pilgrims and shipwrecked mariners. They had plundered and destroyed churches, houses and other buildings, and taken ecclesiastical goods and produce belonging to the abbey and the lay lord. Services were being disrupted, including worship, sacraments, and hospitality to the poor and sick. The evildoers seem to have been identified as men of South West England and Brittany and the pope forbade such activities and granted a large indulgence of seven years and seven Lents to pilgrims visiting the chapel of St Elide (on St Helen's). This chapel, the pope observed, belonged to Tavistock and was governed by monks but its buildings, books and ornaments had much deteriorated. The indulgence was given to all who gave alms to the chapel, or who visited it at Christmas, Midsummer or the feast-day of St Elide (8 August). When William Worcester visited Tavistock in 1478 he learned that Scilly lay under the power or supervision of Pope Pius 2010, 268).

8.6 Social life

Shortly after the Norman Conquest the islands became the property of the Crown of England, and from 1141, part of the Earldom then, after 1337, the Duchy of Cornwall. From the twelfth century the administration of Scilly was divided with Tavistock Abbey presiding over the northern part whilst the de Wika family of Week St Mary in north Cornwall were the proprietors of what are now St Mary's and St Agnes. In 1248 Dreux de Barrantine was sent to Scilly by Henry III to act as Governor and administer justice (Bowley 1964, 40; Land Use Consultants 1996, 23).

At the end of the twelfth century the population of Scilly may have been about 300, and for most of those life would have been harsh and insecure even if there were improvements of a sort and the population underwent a gradual increase from the beginning of the fourteenth century (Thomas 1985, 219). We know little about the day to day life of ordinary people in medieval Scilly.

During the last decade of the thirteenth century the civil administration of the Islands passed to the Blanchminsters, an important family holding estates in Yorkshire and Cornwall, and in 1306 Ralph Blanchminster became the first of his family to hold the Captaincy of Silly. He held the Ennor castle on St Mary's in return for maintaining twelve men-at-arms for keeping the peace. As tenant-in-chief he paid a yearly tribute to the king of three hundred puffins or 6s 8d - puffins, considered fish rather than fowl, could be eaten during Lent, and their feathers were also valuable, but money seems always to have been paid. The islands under civil administration, together with the Ennor castle were valued at £19 a year. From the Blanchminsters administration of the islands of St Mary's and St Agnes passed to the Tresillians, Coleshills, and Arundells. In the fourteenth century St Agnes was held by the Hamely family for a considerable period of time. In 1505 John Croker, husband of Anne Arundell, was the 'tenant-in-chief of the Castle and Manor of Scilly' (Matthews 1960, 10; Bowley 1964, 43).

The traditional punishment for wrongdoers in medieval Scilly appears to have been marooning. A document of 1284 records *'John de Allet and Isabella, his wife, hold the Isles of Scilly and hold there all kinds of pleas of the crown throughout their jurisdiction and make indictments of felonies. When anyone attainted of any felony, he ought to be taken to a certain rock in the sea [the Bishop Rock], with two barley loaves and one pitcher of water upon the same rock, they leave the same felon until by the flowing of the sea he is swallowed up'* (in Bowley 1964, 43).

Records dating to 1302 also refer to a crime and punishment relating to three women from Trenoweth on St Mary's 'The jurors present that a certain Muriel de Trenywith and Joan and Margery her daughters in the time of John de Allet, lord of the island who died, were indicted of theft and were immediately taken and led to the rock in the sea which is called Maenenescop [Bishop Rock] and there by the judgement of the aforesaid john they were left until drowned by the tide. The chattels of the aforesaid Muriel come to 6s 10½d for which the sheriff answers (in Stanbrook 2010, 8).

For a time the Islands may have provided refuge for runaway serfs as is shown in this document of 1354 *'Edward the [Black] Prince, etc to Walter Hull, Constable of the Castle and Keeper of the Isles of Scilly: At the suggestion of our well-beloved Ralph Vyvyan, one of our tenants in Cornwall, we command you that whereas Robert Martyn, Roger Tregarn, Robert Carngonel, and other his born serfs have run away out of his seignory in Cornwall as far as the said Isles and now remain there. We command that if it be so, you permit that he take them again, and cause them to return to his seignory as Law and Right require, and do not make any disturbance or maintenance by them against him in this matter to his disinheritance. Done by our Privy seal a London, the 4th February, 27 Edward III'* (in Bowley 1964, 40).

In about 1478 the antiquary William Worcester noted the names of two islands, St Mary and Tresco stating that both belonged to Tavistock and that the latter was uncultivated (Orme 2010). In 1484 it seems the Islands were worth forty shillings in time of peace but in time of war nothing (Bowley 1964, 43).

In 1501 Tavistock Abbey leased 'the isles, churches, and chapels of Scilly, with all their tithings, oblations, fruits, and emoluments, concerning and pertaining there to us by the priory of Scilly', to William Trewynnard and his son James for a period of seven years at an annual rent of £3 13s 4d, five dozen puffins, and a seal (Orme 2010, 269).

8.7 Religion and ritual

From the eleventh century there appears to have been a general revival in Christianity in Scilly, which increased under Tavistock's influence; existing establishments were improved and new ones built, for example, on St Helen's, and at Old Town, St Mary's. By 1461, St Helen's church was in a state of disrepair and, like St Nicholas' Priory (hardly mentioned in documentary sources after the fifteenth century); it may have become ruined before the Reformation. The priory does not even feature in a list of Tavistock's possessions drawn up at that time (Ratcliffe 1995).

8.7.1 St Nicholas Priory

On 13 September 1114 King Henry I granted 'all the churches of Scilly with their appurtenances' to Tavistock abbey, to be held 'just as well as ever monks and hermits held them in the time of King Edward [the Confessor] and Burgald, bishop of Cornwall'. The grant was made to Osbert, abbot of Tavistock, and to Turolde his monk, and included the order that Turolde and 'all the monks of Scilly' should enjoy the king's peace. This points to the existence of a small monastic community by this date with Turolde as its head. The priory is likely to have been a new enterprise founded in or shortly before 1114 (Orme 2010, 266; contra Thomas 1985, 200-1). As prior, Turolde would have been one of only two or three brethren, with servants living nearby and farming the adjoining land.

The island of Tresco where the church was sited was also known as the island of St Nicholas in the medieval period, after the dedication of the church. The church must have existed there by the early twelfth century and appears to have been substantially rebuilt in the early fourteenth century (Orme 2010, 266-7).

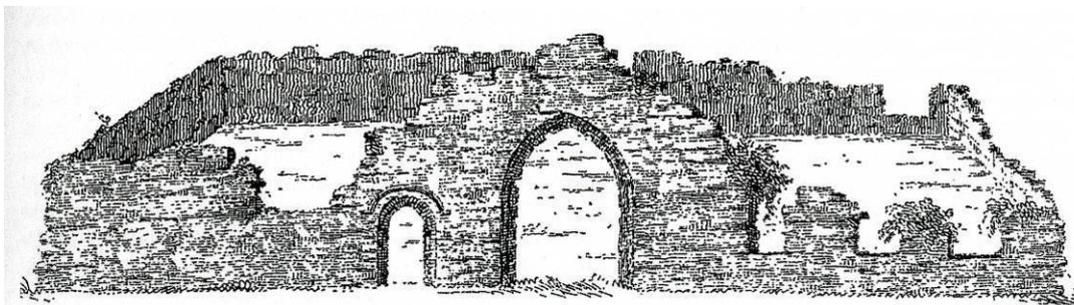


Fig 8.4 William Borlase's drawing of the ruins of St Nicholas

The remains of the priory are recorded on the 1886 OS map as 'St Nicholas's Abbey (remains of)' and on the 1963 OS map as 'Remains of St Nicholas's Abbey (Benedictine Cell)'. O'Neil notes that there are some remains of this monastery in the gardens of the present Tresco Abbey (the nineteenth century residence of the Dorrien-Smith family). The outline of nave and chancel may be traced although much of the present visible walling is due to modern rebuilding. In the south wall there are two fine arches, perhaps partly rebuilt, which seem to have led, respectively, east to the south transept of the church, and west into the north walk of the cloister. The remaining building is a Listed Building, Grade II and a Scheduled Monument; it is 25m long on its east-west axis and 8m wide. At the point where it incorporates the two arches the wall is 4.5m high; elsewhere it is about 2.5m high, and abutted by raised and other flower beds internally and externally. There is a third, blocked, doorway in the centre of the north wall; and opposing blocked windows at the east end of the building. The interior was modified by use as a graveyard in the eighteenth and nineteenth centuries and subsequently as a walled garden (Ratcliffe 1993).

Elsewhere, built into a wall, is part of an early font, decorated with round-arched arcading. A plan and elevation of the priory church remains were made by Borlase in 1756 (Fig 8.4). A field survey was made by the Cornwall Archaeological Unit in 1991 (Ratcliffe 1993).

Priors of Scilly

Tuold	Occurs 13 September 1114
Hugh	Occurs 1161x1184
Alan	Vacated by 8 June 1233
John Chubbe	Vacated 1262
John (of Yalmeton?)	Occurs 1305
Robert Deneys	Occurs 4 January 1331
John Duraunte	Replaced 28 September 1373
Richard Auncell	Appointed 28 September 1373; occurs 11 October 1375; vacated by 7 December 1385
John Denyngton	Occurs 23 March 1443
Richard Salter	Appointed 28 October 1452

Fig 8.5 Priors of Scilly (from Orme 2010)

8.7.2 Churches and chapels

St Mary's

The present church at Old Town is a restored fragment of the original Norman nave, divided from a side chapel by a round headed arch (Pevsner 1970, 209). Sedding (1909, 167) describes the arch as dating to c 1150, and Thomas (1985, 212-3) suggests an original building period for the church of 1130 to 1140, when it acted as equivalent of a parish church for the lay populace of Ennor. According to Laws (1980, 5), the church had become ruinous by the 1820s, was rebuilt in the 1830s, and was again restored by the end of the century (1890). In the east wall, above the granite altar is a three light window of good stained glass depicting the crucifixion with Our Lady and St John, which probably belongs to the last restoration. On the apex of the east gable of the church is one of the crosses which may have marked the limit of the glebe in the Norman period.

Thomas (1985, 213) quotes a twelfth century (probably 1176) charter from Bishop Bartholomew of Exeter to the prior and monks of Scilly. This condemns the fact that Richard de Wika had built a chapel within the parish of St Mary's (Old Town) church and a certain priest had dared to celebrate divine offices in it. The offending chapel was presumably closed and the priest removed. Thomas says we have no idea where it stood but guesses that it was on the Old Town side of the inlet.

Thomas (1985, 215-7) also identified the almost certain site of St Maudut's chapel on the south side of 'The Bank' in Hugh Town. There are two fourteenth century references to it (in Thomas 1977, Thomas 1985, 215-7; Doble 1938, 15) and a 1712 reference (CRO DDGO/643) to a 'Papist house' which could be the same building described by Troutbeck (1796). The former chapel described by him had mullioned windows and a burial ground on its south side. He also mentions a cross base. Whitfield (1852, 210) was shown the site (at the foot of Garrison Hill) and met the mason who had pulled down the building, which had 'a doorway, with a fine pointed arch' and mullioned windows. Thomas (1985, 215-7) depicts a rectangular building with a west or south doorway, perhaps fourteenth century in date, which may have been built on open ground or replaced a pre-Norman chapel attached to a burial ground. He plots the location of 11 pieces of masonry, in Hugh Town and on the Garrison, which may have

come from St Maudut's chapel, including three stones in the Parade, one at Porthcressa, and two opposite the Atlantic Hotel. Part of a re-used mullioned window discovered recently on the Garrison may have come from this site originally (Fig 8.6).

St Helen's

On St Helen's a larger church was built south of the old oratory/chapel at the beginning of the eleventh century and when Tavistock abbey took over the ecclesiastical administration of Scilly it was extended by the rebuilding of its east end and the addition of a northern aisle (Fig 8.6). At the same time the circular living cell was refurbished, three rectangular rooms built and the walled enclosure remodelled. The church had fallen into disrepair by the fifteenth century and was probably in ruins by the time of the reformation. When recorded by Borlase in 1752 the church still stood to roof height (Borlase 1756) but the walls were tumbled and low when excavated in the 1950s (O'Neil 1964).



Fig 8.6 Borlase's drawing of the arches between the south and north aisles in St Helen's Church

Entered through its small twelfth century porch the church's nave has at its east end a sanctuary step and the foundations of a stone altar, which supported a small consecrated super-altar. Stone benches originally ran around much of the nave and the north aisle which also had a raised east end where the side altar stood. The fragment of Purbeck marble indicates either a font or a shrine housed St Elidius' exhumed remains. For several hundred years after his death pilgrims came to revere his holy remains and today the Anglican Church on Scilly holds a service on the site on his feast day (8 August).

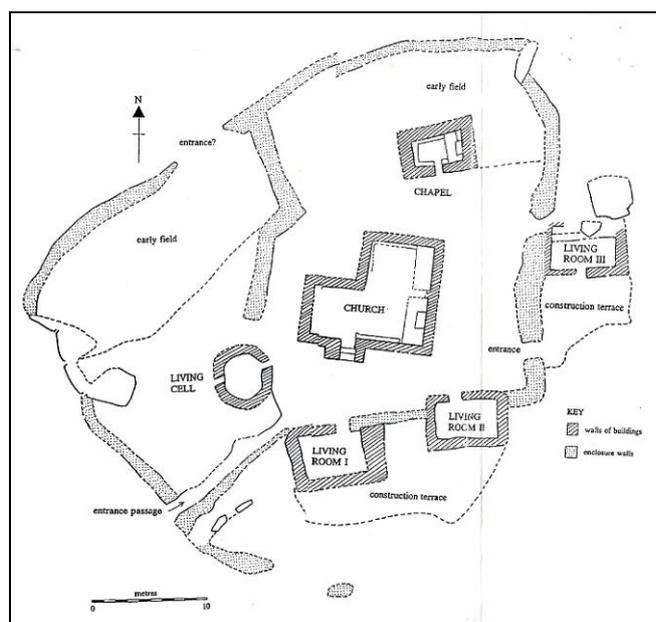


Fig 8.7 Plan of the St Helen's ecclesiastical complex from the 1993 CAU survey

The building walls were constructed almost entirely of undressed granite with dressed masonry (granite and imported freestone) used only for architectural detail in the twelfth century church. The church, the refurbished circular cell and two of the rooms were roofed with slate. Borlase's drawings show the nave and aisle divided by two low arches (Fig 8.6). Dressed stone from these was found during the excavation together with pieces of stone window and a fragment of leaded window light with painted glass attached. The remains of a splayed window can be seen in the aisle's east wall and the position of three others are shown on a plan drawn by Borlase. The site was cleared scrub and surveyed by the Cornwall Archaeological Unit in 1993 (Fig 8.7; Ratcliffe 1994).

St Agnes

Leland, c 1542, noted that "*St Agnes Isle [is] so caullid of a Chapel therin*" (Chope 1918, 24). The 1652 Parliamentary survey noted that 'Bernard Hicks' house at 'Port Eagles' or 'Egles Port' (Periglis) was in part "anciently a chappell" while his garden "hath been and is ye burying place" (Pounds (ed) 1984, II). Presumably this was the medieval chapel and cemetery dedicated in honour of the local saint who it is suggested was 'Arana' and not 'Warna' as it later became (Thomas 1977). There is a local tradition that the original burial place of St Agnes was in this area south west of the lifeboat slip and skulls and other bones and a grave have been seen by inhabitants in this vicinity. The Cornwall and Scilly HER records that Mr L Hicks of the lighthouse, St Agnes, thought that the ruined buildings south of the slipway probably incorporated the footings or remains of Bernard Hicks' house, and that there are surface irregularities nearby in the OS field no 6929, which may represent wall lines of early buildings.

St Martin's

The 'lighthouse chapel' on St Martin's Head continued in use through the medieval period and is shown on Captain Greenville Collins' navigation chart of the Isles of Scilly surveyed between 1691 and 1698 (UKHO B888).

The island name St Martin's is at least as old as 1500 and Thomas (1985, 223) thinks there must have been a church on the island which gave rise to this name. Davis's map of 1585 shows a symbol which appears to represent an ecclesiastical site, on the northern tip of St Martin's but Thomas implies that this location is a mistake, and that the symbol actually indicates a church or chapel pre-dating Ekins' 1763 church at Higher Town (*ibid*, 244). The existence of an earlier ecclesiastical site here is corroborated by the presence of an earlier cemetery, and the possible medieval cross base. A papal bull of 1193 mentions "churches" on Scilly owned by the Abbey of Tavistock. Thomas suggests that St Martin's "is the most likely for a second ecclesia", the other being on St Mary's (*ibid*, 226-7). Also, finds of green-glazed and bar-lug pottery from St Martin's suggest that 'the whole south west facing inward crescent of St Martin's contains some lost focus of settlement from medieval times... and our legitimate inference can be that the small population possessed a Christian burial ground (where the present church stands), a chapel ascribed to St Martin, sufficient religious standing for this to represent an ecclesia in the 1193 bull, and subsequently to lend its patronal name three centuries afterwards to the whole of the isle' (*ibid*, 227).

Tean

Although there is little archaeological trace the chapel on Tean may still have had some sporadic use until about 1120 because the saint's name was still being cited (Thomas 1985, 202).

Samson

There was possibly a chapel on Samson, separate to the early medieval features excavated at East Porth in 1971, although this is speculative (Thomas 1985, 202).

8.8 Human osteological remains

A shallow grave containing an articulated human skeleton was found during BT trenching at Lower Town, St Martin's in September 1992 (Ratcliffe 1997). The grave was located beneath the surface of the road, 1.3km from the present graveyard on St Martin's and the bones were unusually well preserved given the normally high acidity of soils in Scilly.

The Lower Town skeleton had received a Christian burial since it was lying in an extended position and was orientated east to west with the head at the west. Certain characteristics hinted that it may have been buried during the Early Christian period - namely burial without a coffin, the placing of the hands together over the pelvis and the shape of the grave which was very shallow and narrow.

Approximately 60% of the skeleton survived although most of the torso was absent. Of the bones present, the right hand limb bones were in a better state of preservation than those on the left. The remains were those of a male who was probably about 1.72m (5 feet 6½ inches) in height and 33 to 45 years old at the time of death (estimated from the degree of dental attrition). The only pathological evidence that could be identified was dental hypoplasia, a structural defect resulting from environmental or dietary factors during the development of the tooth (Ratcliffe 1997).

Radiocarbon dating of the skeleton revealed that burial had occurred between 1034 and 1252 (GU 3142, 880±50). The crudeness of the Lower Town grave may be evidence for it not being part of a cemetery, but a solitary grave deliberately located away from the island's main burial ground. This may have occurred if the dead man was not local but, for example, a drowned shipwreck victim, or if his family could not afford to have him buried in the graveyard (Ratcliffe 1997).

8.9 Defence and warfare



Fig 8.9 Ennor Castle (photo: Cornwall Council)

The principal stronghold of medieval Scilly was the small shell keep castle known as Ennor, or Old Town, Castle which occupies a small but prominent knoll on the east side of the broad Lower Moors valley behind Old Town Bay on the south coast of St Mary's (Fig 8.8). The earliest reference to Ennor Castle is in a deed of AD 1244 and by 1306 the castle was held by Ranulf de Blanchminster held the castle. A royal licence to crenellate the castle was granted to Ranulf in 1315 but in 1337, the castle along with the rest of Scilly was included in the lands of the newly created Duchy of Cornwall.

Leland, c 1542, noted that it was a "meately [moderately] strong Pile, but the Roue of the Buildings in it be sore defaced and woren" (Chope 1918, 23).

The castle was superseded by Star Castle as the main fortification of Scilly and is traditionally thought to have been a source of stone for the new fort and for other buildings in Old Town and Hugh Town. ennor castle is on private land and now overgrown with mesembryanthemum, the flowers brightening up the outcrop in summer.

Modern housing in Hugh Town covers a hillock (Mount Holles) on which a medieval keep may have stood.

8.10 Scientific dating

8.10.1 Radiocarbon dates

The five radiocarbon determinations listed below in Figure 8.9 below have been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they appear.

Lab Ref	¹⁴ C age BP	Cal AD	Site	Context	Reference
GU-2569	1030±50	892-1153	Big Pool, St Agnes	Lower band of peat and organic sediment	Scourse 1986
?	998±57	896-1170	Old Town Bay, St martin's	Upper peat deposit	Ratcliffe & Straker 1998
OxA-4063	995±55	898-1169	Lower Town, St Martin's	Ovicaprid bone from midden	Ratcliffe 1997
GU-3412	880±50	1034-1252	Lower Town, St Martin's	Human bone from burial	Ratcliffe & Straker 1996
SUERC-39452	689 ±38	1291-1320	Lower Moors, St Mary's	Peat	Perez forthcoming

Fig 8.9 List of medieval radiocarbon dates

8.10.2 OSL dating

Optically Stimulated Luminescence (OSL) dating on submarine and intertidal deposits recovered during the Lyonesse Project has not produced any medieval OSL ages (Roberts in Charman *et al* 2012).

9 Post-medieval and modern (1547-present)

Edited by Charles Johns from contributions by John Allan, Eric Berry, Eleanor Breen, Allan Brodie, Kevin Camidge, Tom Greeves, Graeme Kirkham, Richard Larn, Rachel Leung, Robert Platts, Fraser Sturt, and Sue Watts

9.1 Introduction

The main characteristics of Scilly's post-medieval and modern resource are summarised in this chapter. The discovery of the New World increased the strategic importance of Scilly and from the mid-sixteenth century government exerted much greater influence on the Islands as it became increasingly involved with matters such as defence that had previously been dealt with locally. Their situation as the western most anchorage and the first/last landfall of the South Western approaches has not only physically shaped the Isles, but also the nature of their archaeological record. This record holds significance in its own right, as well as playing a part in nationally and internationally significant stories of colonisation, travel, trade and conflict.

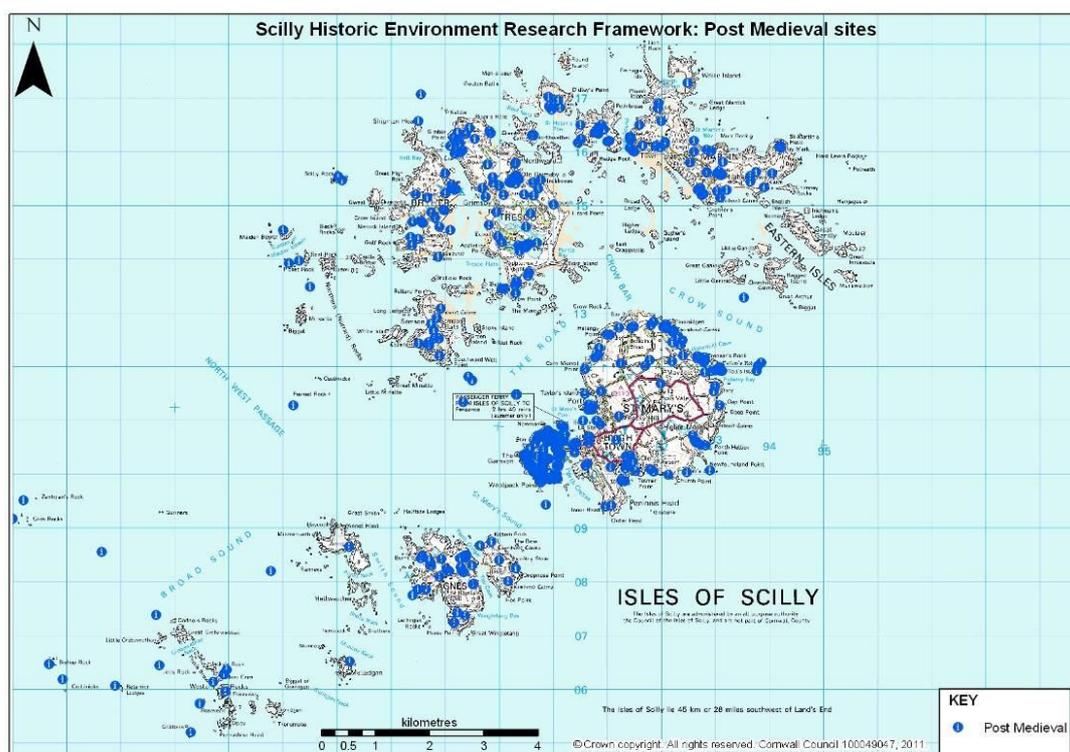


Fig 9.1 Post-medieval sites recorded in the Cornwall and Scilly HER

9.2 Environment and landscape

The three historical events which are likely to have had the most impact on the pattern of the farming landscape during the post-medieval period are the leasing of the Islands by Francis Godolphin in 1570 and by Augustus Smith in 1834 and the start of the Scillonian flower industry during the late nineteenth century (see below section 9.9.6). Godolphin is known to have encouraged Cornish people to settle in Scilly, particularly on St Martin's, and this may have involved the laying out of new field systems or reorganisation of existing ones, but it is not clear yet whether this influence can be detected in the present field pattern, and it is possible that the new immigrants merely brought previously abandoned fields back into use (Ratcliffe 1995, 7).

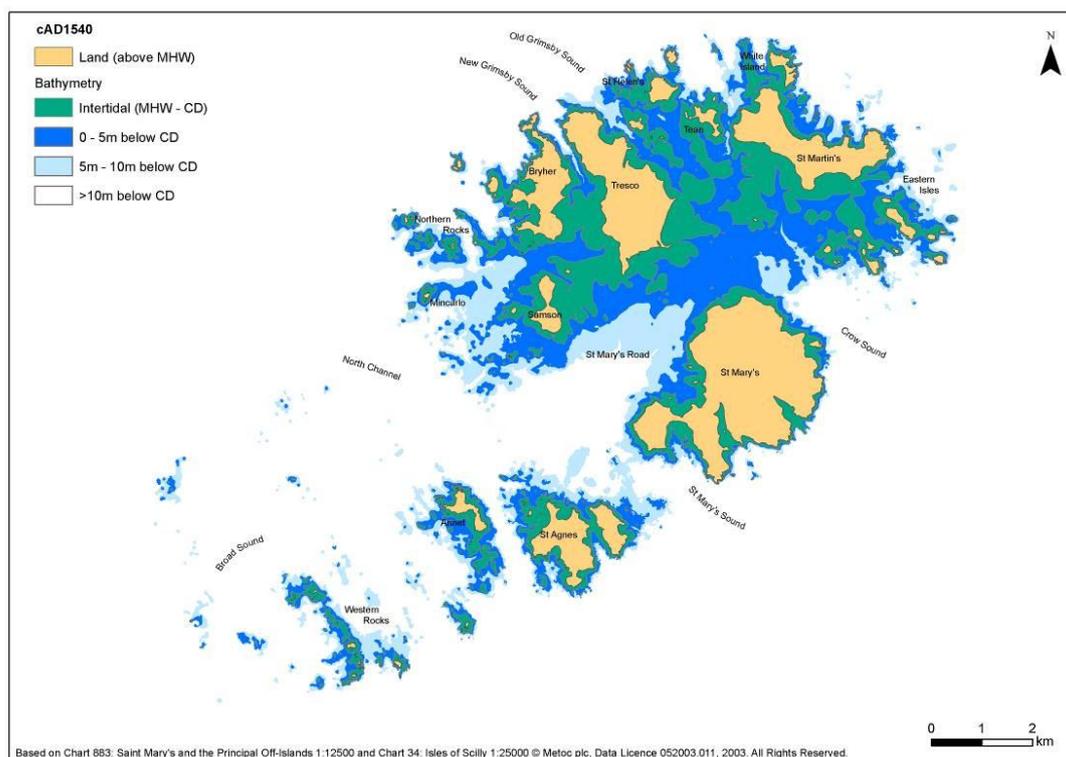


Fig 9.2 Inferred submergence model c1540 based on data from the Lyonesse Project (Charman et al 2012)

Augustus Smith was an economic reformer who began his term as landlord by reallocating farm holdings, which had become minute and scattered by subdivision, and introduced a system of inheritance by which land passed only to the eldest son, all other offspring being forced to find alternative employment. This reallocation need not have led to alteration of the existing field pattern. However, given that the aim was to maximise on agricultural yields, it is likely that the straight sided enclosures shown on the 1888 OS map represent new enclosure of areas of heathland and the remodelling of anciently enclosed land during the second half of the nineteenth century. The large enclosure on South Hill, Samson, is definitely of this date, being an abortive attempt by Smith to create a deerpark (Ratcliffe 1995, 7-8).

From the Iron Age to the mid-nineteenth century Scilly remained a treeless environment (with the exception perhaps of a few orchards and elm groves). However, in the last one hundred and fifty years pines and elms have been planted as windbreaks within and along the edges of the enclosed farmland (particularly on St Mary's and Tresco). Rhododendrons, eucalyptus, sycamores and evergreen oaks have also been planted on Tresco, mainly on former heathland as shelter and cover for game birds. Together with the hedges planted along the side of bulb fields (tamarisk, pittosporum, escallonia, euonymus) which have in places been allowed to grow to treelike proportions, this nineteenth and twentieth century tree planting has led to Scilly having a more wooded appearance today than it has had at any other time during the last three thousand years (Ratcliffe 1995, 9).

Field boundaries are a characteristic feature of Scilly's farmed landscape. As well as having landscape value the boundaries are of historic importance, both for showing how the landscape has changed and developed and for their archaeological potential; some have prehistoric origins. The islands' walling techniques are distinct from those of the mainland and in some respects differ from island to island, although there are broad similarities in the suite of

boundary types. Some field systems are in disrepair. With the progressive loss of traditional dry-stone walling skills, some field boundaries are losing their traditional character.

The 1996 Historic Landscape Assessment (Land Use Consultants) identified four historic landscape types in Scilly: **Anciently Enclosed Land** (AEL) this is land enclosed prior to the nineteenth century, which includes field systems which are as early as the Bronze Age in origin or, theoretically, as late as the eighteenth century; **Late Post-medieval Enclosures**, (LPE) These are straight-sided enclosures, usually square or rectangular in shape, but occasionally other less regular shapes. They are probably of nineteenth century date and are the result either of the remodelling of AEL or new enclosure of what was previously heathland; Late nineteenth/twentieth century **Bulb Strips**, these are small narrow enclosures designed for the cultivation of flowers (daffodils and narcissi). Comparison of the 1888 and 1908 OS 25" maps indicates that most of these strips were created during this 20 year period (with only a relatively few being laid out before 1888 or after 1908); **Modern Enclosures**; these are enclosures not shown on the 1908 OS map but which appear on the 1980 map or were recorded during the fieldwork.

9.3 Material culture

9.3.1 Ceramics

The methodology for the post-medieval ceramics resource assessment was the same as that for the medieval resource assessment (see above section 8.4.3). The only additional significant omission from the assessment has been failure to re-examine the collection from King Charles's Castle, Treco, believed to be in an English Heritage store but not accessible at the time of writing.

The period 1500–1650

From the period 1500–1650 the single informative collection is that from King Charles Castle, published by Miles and Saunders (1970). It is an interesting reflection of the limited progress which has taken place in the subsequent period of more than 40 years that this remains the most important single report on the early modern pottery of Cornwall. Alongside a range of Cornish and North Devon coarsewares, the collection contains Portuguese coarseware and an important group of maiolica tiles from Seville in arista technique (probably reused monastic spoil of the 1520s).

The period after 1650

From the late seventeenth century onwards there is a steep increase in the volume of ceramics on the islands. In part this reflects the general rise in the islands' population (about 650 in 1650, 1960 in 1799, about 2000–2500 in the nineteenth century) but a more important factor is probably the marked increase in the volume of ceramics used at every social level. Nearly all the material of this date is held at IOSM. Some of it comes from unsystematic private excavation (such as the collections from sites around the Garrison, which include some fine examples of late seventeenth century North Devon sgraffito, alongside imported wares.

Material of this date is also a regular feature of beachcombers' collections. It would be easy to dismiss their finds as unstratified collections of little archaeological value, and it may indeed prove impossible to extract much information from the many collections of post-1750 industrial earthenwares and stonewares, but it is unwise to presume this is always the case. Some beachcombers' finds are certainly of considerable interest; the instance of the medieval Saintonge pottery from Porthcressa has been mentioned above, and other casual finds include unusual imports.

Significant gaps in current knowledge

Much basic work is needed to develop understanding of both the medieval and the post-medieval pottery of Cornwall, which forms the bulk of the Scilly collections.

To allow satisfactory reporting, the pottery of the different Cornish kilns needs to be characterised. At present vague terms like 'Cornish coarseware' are commonly used to express the wide range of possible identifications represented in sherd collections. Ten different Cornish potting centres are known from seventeenth and eighteenth century documentary evidence (Douch 1969). Kiln waste has been excavated for three of these – in two cases more than 40 years ago. In no case has a report appeared. Basic petrological description is needed to aid researchers in establishing the differences between the kilns. The validity of some of the terms in regular use when describing Cornish pottery, such as 'Sandy Lane ware' or 'Stuffle ware', needs exploration by petrological or chemical analyses. No fabric series for Cornish coarsewares exists.

Mason's excavation and publication of the early nineteenth century (c 1820–50) pottery from a cottage on Samson – the kind of study commonly undertaken on sites of this date in North America and Australia but uncommon in Britain (Mason 1984) – illustrates the point that, when stratified or related to a specific context, the industrial ceramics from the islands need not be dismissed as material of little consequence: they are capable of yielding worthwhile information about the material culture of the islands.

9.3.2 Other artefacts

Clay pipes

Clay pipe fragments are common finds, usually dating from the seventeenth to late nineteenth centuries and concentrated around area of modern settlement (Ratcliffe 1991, 107-114). Ten clay pipe fragments, probably dating to c1820-1840 were found in the post-medieval midden on Samson outside of House A, most if not all were of West Country origin (Evans in Mason 1984, 68, fig 11).

Coins and tokens

Recorded finds include a Charles I Rose Farthing from a field at North Farm, St Martin's, an Irish Charles II halfpenny minted in 1680 found in a midden at the entrance to Breakaway, St Martin's, a George III penny dating to 1819 from Myrtle Cottage, St Agnes, a Portuguese 10 Reis of Maria and Peter III (?1791) from a field north west of Old Grimsby, Tresco, and an eighteenth century gaming token found on Higher Town Beach, St Martin's (Ratcliffe 1991, 115).

Metalwork

Metalwork recovered from the Samson buildings in 2006/7 includes many iron nails, iron bolts, an iron door hinge, an iron ring door knocker, part of Cornish shovel, a nineteenth century clasp knife with a bone handle (Johns *et al* forthcoming a).

Buttons

Buttons are frequent finds and include three nineteenth century decorated military buttons found during the off islands Electrification Project (Ratcliffe 1991, 115). Three late eighteenth or early nineteenth century civilian brass buttons and an officers coatee button were found in the midden outside House A on Samson, as well as 38 bone buttons and five shell buttons (Mason 1984, 66-7).

Glass seals

A sixteenth or seventeenth century Spanish or Portuguese intaglio double seal made of purplish glass was found a Cove Vean, St Agnes (Ratcliffe 1991, 115).

Glass

Bottle glass is occurs frequently (Ratcliffe 1991, 115). Most of the glass from the midden outside House A on Samson was bottle glass from wine bottles. There were a few pieces of window glass inside embedded in the floor (Mason 1984, 67). Glass recovered from the Samson buildings in 2006/7 includes two fragments of a nineteenth century glass candlestick, fragments of window glass (Johns *et al* forthcoming a).

Gunflints

Thirteen gunflints dating from the mid-seventeenth to the early nineteenth century were recorded during the off islands Electrification Project, mostly from Tresco and Bryher, with two from St Agnes and one from Bryher (Ratcliffe 1991, 40). Five gunflints were found in the post-medieval midden on Samson outside of House A (Mason 1984, 67).

Leather

A leather oar collar was recovered from House H on Samson in 2006 (Johns *et al* 2007, 51).

9.3.3 Building materials

Scillonian granite and in some cases, granite from Cornwall, are the principal building materials used on the islands. The granite is usually bedded in local earth mortar using *ram*. Granite ashlar, more likely to be used for higher status buildings is usually bedded in lime mortar.

The earlier roofing tradition for all but the most prestigious buildings was thatch. The older roofs coverings that survive in Scilly are scantle slate that was imported from North Cornwall. Terra-cotta tile is another traditional roofing material that was imported to Scilly, usually as a ballast cargo. This was more commonly used on outbuildings.

Salvage

Every scrap of timber which floated ashore or could be removed from shipwrecks would have been put to good use by the Scillonians, incorporated into buildings as lintels, door or window frames, floor or ceiling joists or roof timbers, or simply cut up for firewood. In many instances wreck timbers were reused in the building of new vessels in the shipyards of St Mary's and Bryher. Most of the older buildings in Scilly still hold ship's timbers in some form or other, which are frequently exposed during alterations or extensions and identifiable by their iron or wooden treenail fastenings, shape, or cut-out sections. Such finds generally go unrecorded. When the Wesleyan Chapel in Garrison Lane, St Mary's, was being refurbished for conversion to a public library, educational centre and council offices in the 1990s, a large number of wooden ship components were found beneath the floorboards (Johns *et al* 2004, 146).

In 1998, a local builder on lifting the floorboards of Rose Cottage at Trenoweth in preparation to replace them with a concrete floor found the boards were supported on large curved timber frames from a ship. Building work on the 'Sandpiper' shop at the Bank on St Mary's showed that the ground floor was supported on huge oak keel timbers, some 400mm (16ins) square, which were notched out to hold hull frames. There are also several examples of ship timbers still to be seen around the islands; on St Mary's outside commercial premises at Old Town, on the concrete hard-standing of the old RNAS seaplane base at Porth Mellon, in Tresco Gardens Valhalla Collection; a door lintel in the Pest House, St. Helen's and a particularly fine example of a eighteenth/nineteenth century part stern-post with bronze gudgeons outside Bank Cottage on Bryher (Johns *et al* 2004, 146).

9.4 Identities

Until the advent of steamship technology in the mid-nineteenth century the voyage to Scilly from the mainland could take anywhere from 12 hours to two days (Hudston 2000, 11); the very remoteness and isolation of Scilly has led to the evolution of a distinctive island culture which is quite separate from mainland Cornwall. This island culture has had a fascination for many writers and was summarised by Gill Arbery (2002).

The islanders have a fierce independence and a natural suspicion of anything imposed from outside Scilly, particularly if it has the stamp of Central Government officialdom.

Although there are certain affinities with Cornwall, Scilly's long-established trade links and seafaring legacy has resulted in links with the wider world, so that the islands have developed a cosmopolitan outlook. Although many place-names in Scilly have old Cornish roots Scillonians do not consider themselves to be Cornish. Nearly all the inhabitants of the islands, old Scillonians or relative newcomers alike, develop a fierce protectiveness towards any perceived threats to the island's unique qualities, and they also wish visitors to love their islands as they do. The traditional life of the islands has been based predominantly on the sea, with coastal industries, and later flower farming and tourism, supplanting subsistence agriculture since the early eighteenth century (Arbery 2002, 25).

The population of the islands has remained fairly static at just over 2,000 for the last 20 years with approximately 1,600 on St Mary's, the largest island. The population is more than doubled by visitors at the peak of summer holiday season (Arbery 2002, 25).

Hugh Town on St Mary's is most akin to the mainland, but the pace is still remarkably quiet and slow. Of the inhabited off-islands, Tresco is run by the Dorrien-Smith family as a private estate, marketed as a sophisticated, unspoilt island paradise, Bryher and St Agnes vie for the honour of being the most unspoilt and traditional of the islands, whilst the inhabitants of St Martin's were said to be the most independent of the off-islanders. Of necessity, there has always been a strong tradition of recycling materials, 'make do and mend', on the islands, especially using wreck wood, which in the past has enhanced many buildings (Arbery 2002, 27).

The majority of original Scillonian families can only trace their association with the islands back to the seventeenth century, when their ancestors came to Scilly during the post-Civil War resettlement. Nevertheless, they are proud of their descent and consider that only families with at least 'three generations under the sod' can be called Scillonians. These Scillonians are now in a minority due to successive out-migration of the local population and continual influx of people from the mainland wishing to settle or retire. Traditionally, only those born in Scilly can call themselves islanders, others, even individuals who have lived there for many years, can only claim to be residents (Arbery 2002, 25). Locally, the islands are either called 'the Isles of Scilly' or 'Scilly', the term 'Scilly Isles' is regarded as rather derogative and only used by those unacquainted with the place.

Certain family names are inextricably linked with certain islands, for example: the Woodcocks and Webbers with Samson (many islanders are proud to trace their descent from these families), the Nances with Tean and St Martin's, Jenkins with Bryher, Hicks with St Agnes, Mumfords, Banfields, Lethbridges with St Mary's.

Scilly has an active Family History Group. The social history collection held by the museum, is of great benefit to those carrying out research on their family's life style in years gone by. Photos, articles of clothing, tools and instruments, books

and records etc held in the museum, have been acquired mainly from local sources and Island families.

9.5 Food production

9.5.1 Farming

Farming continued to be the mainstay of the economy during the post-medieval and modern periods; pigs and cattle were raised and potatoes and wheat were the main crops. During the nineteenth century earlier and better varieties of potato were introduced, the surplus being exported to the Mediterranean.

Throughout the post-medieval period farming continued to be the mainstay of the economy. Cattle, sheep, pigs, horses and chickens were the domesticated animals kept. The cattle were initially small, black, hardy beasts, which on some islands were fed on seaweed, but were replaced during the early nineteenth century by Devon X Shorthorn crosses and Jerseys. A peculiar small breed of sheep persisted into the twentieth century. Pigs were very large and plentiful, every householder keeping one. Horses, similar to the Exmoor pony and grazed mainly on furze (gorse), were kept as pack-animals for transporting seaweed (for use as manure) and, together with cattle were used to pull ploughs. However, during the nineteenth century they were largely replaced by donkeys, which could be obtained cheaply from the Cornish mining districts. For most of the post-medieval period the crops grown were potatoes, barley, wheat, peas, oats and a grain called *Pillis*. Potatoes were grown in large quantities, with some farmers gathering two crops a year; and the introduction of better and earlier varieties during the nineteenth century led to a surplus for export. Enough barley was grown to supply all the Islands with beer, bread for the poorer families and feed for cattle and pigs. Only a little wheat was produced locally, sacks of flour being imported from the mainland, but sufficient quantities of peas, oats and pillis were grown to serve the local need. The pillis was ground and used as an alternative to oatmeal (Ratcliffe 1995, 7-8).

Throughout the post-medieval period the heathland which adjoined the enclosed farmland was valuable as rough summer pasture, sub-divided by boundary walls on St Mary's but not elsewhere. In addition, the heathland was an important source of fuel - turf, furse (gorse), broom and ferns (bracken). Bracken was also used as bedding for animals - there are several areas (known as *Fern splatts*) on St Martin's where farmers had individual or group rights to cut bracken (K Low, pers comm to J Ratcliffe) and such areas presumably also existed on the other islands. Peat was also dug from low-lying wetlands, such as Higher and Lower Moors on St Mary's, and these may also have provided reeds and coppiced willow for thatching, basketwork and fencing. The pattern of anciently enclosed land on St Mary's extends across Higher and Lower Moors, suggesting that these mires were part of the system of enclosed pasture. Scillonians had been making use of heathland and wetland areas in this way since prehistoric times and continued to do so into the twentieth century, and, in the case of rough grazing on heathland, until very recent times (Ratcliffe 1995, 8).

Allotments on the Garrison between the walls and the edge of the cliffs were important for locals and soldiers of the Garrison.

The Cornwall and Scilly HER records a nineteenth century horse engine and threshing machine at Lower Town Farm, St Agnes, Scheduled Monument 15452.

Potato and flower cultivation, and to a much lesser extent the rearing of beef and dairy cattle, have continued into modern times, and a few blocks of bulb strips have been created since the turn of the twentieth century, a few areas of heathland have been taken in as improved grazing and some previously enclosed land has been remodelled. However, farming now accounts for less than 15% of

the Scillonian economy and the number of fields which are becoming inundated by invasive vegetation (bracken, brambles and gorse) is gradually increasing (Ratcliffe 1995, 9).

Water Mill

Troutbeck (nd [c1794], 96) records remains said to have been a water mill at the head of Watermill Bay, St Mary's. No remains of this mill were found by the OS field worker in 1978 but he thought it may have been in the vicinity of SV 922 121 where there is a small stream. The track leading down to the bay from the west is called Watermill Lane. The site was visited by the Cornwall Archaeological Unit in 1988 but no remains of the mill were found. It would be useful to revisit the when the vegetation is low.

Windmills

Grain was ground at communal windmills on St Mary's - the Garrison (1690s-1726), Peninnis Head (1726-1834) [50] and Buzza Hill (1834-late nineteenth century).

There were two late sixteenth or early seventeenth century windmills on the Hugh. One windmill was purchased in 1593/94 and both were noted by the 1652 Duchy survey which stated that they were employed by the Garrison and used by all the islanders with *'soake, toll, suite and custome thereunto belonging* (Pounds (ed) 1984, II). Labelled 'windmills' on the 1655 map and shown with sails on a 1693 chart. Heath confirms that by 1750 they were ruinous: *'two circular walls of windmills formerly in use'*. Troutbeck in 1796 states that they were replaced by Penninis windmill after a dispute concerning islanders wanting access at hours the commanding officer deemed unreasonable. Plans to re-use the towers as blockhouses during the Napoleonic war in 1803 or 1804 were not pursued and in 1822 they were daymarks for shipping.

One windmill was demolished; its position was located by Alan Brodie and Mark Bowden in 2010, the absence of any large plants in this area indicating the presence of a structure impeding growth. Its site is marked on the 1902 Record Plan of Steval and Woolpack Batteries (Bowden and Brodie 2010, fig 61)

The other was allegedly converted into a gun tower, although there is no evidence for this beyond possible 'crenellations' at the top of the older walling. It was used in the mid-nineteenth by the coastguard service and then, in 1869, was acquired by the Shipping Gazette before being taken over in 1871 by Lloyds, who bought it in 1882. Now a private house.

A windmill was built on Peninnis by Francis Godolphin in 1726 when it became difficult for civilians to use those within The Garrison. By Troutbeck's time (c 1794) it was the only grist mill on the island, but was in poor shape and corn had to be sent to Cornwall for milling. By 1798 it was working again with Robert Maybee as the miller, and continued in use until 1834 when superseded by Buzza Tower. The disused mill later served as a signal tower and when Listed in 1954. Demolished in 1960, all that remains is its granite base, housing the lower millstone and bearing a date stone, FG 1726 and another inscribed WT.

Buzza Tower on Buzza Hill, St Mary's was previously called King Edward's Tower. This well known landmark has been maintained since 1912 as a memorial to the King's visit, but was originally a windmill built in 1834 to replace the earlier Peninnis Mill. It stands on a kerbed platform which probably incorporates the remains of a Bronze Age cairn excavated by William Borlase during the eighteenth century.

At Middle Down, Tresco is the bottom stone of a horse-driven mill, a circular platform with a central hole is surrounded by two channels carved out of natural rock. The top stone has been built into a wall elsewhere on Tresco. The mill is

said to have been surrounded by a circle of stones at one time. It is of post-medieval character and was mentioned by Troutbeck (nd), but its function is uncertain; suggestions range from a cider press to a corn or even a tin mill. More likely because of its isolated position and the lack of associated buildings, it was used to crush gorse for horse feed (Ratcliffe and Johns 2003, 52-3).

Quernstones

Querns continued to be used on Scilly until comparatively recently. William Borlase mentions querns (1756, 28) stating that 'if the Mill [Peninnis] is out of repair, or chances to be too much crowded by the Islanders; people, who cannot be conveniently served here, must grind their Corn at home; for which purpose every house is furnished with a Hand-mill.' He then goes on to describe a handmill'.

Many of the rotary quernstones to be seen on the islands are probably, therefore, post-medieval/modern in date. Several on St. Agnes certainly look to be. However, the problem with querns and other stone objects is that many reside in private collections where they have been collected over the years from fields and beaches and in many cases it is no longer possible to determine where they were found (cf Ratcliffe 1991, 67).

9.5.2 Fishing

Fishing was an important source of food but never a major industry. Seine fishing was probably carried since the sixteenth or seventeenth centuries. By this traditional Scillonian (and Cornish) method of fishing pilchards and scad (horse mackerel) were taken by a net laid in a half circle from a beach and then hauled into shallow water. In the eighteenth and nineteenth centuries, at least, scad and potatoes are reputed to have formed the staple island diet (Gill 1975, 107).

Tovey and Ginver's 1779 'New Chart of the Islands of Scilly' depicts a Palace at New Grimsby, presumably a pilchard 'palace' or fish cellar. New Grimsby Quay is still referred to as 'Palace Quay' (*ibid*, 111) and the row of cottages there is 'Palace Row'.

The quality of Scilly ling, caught on long lines, dried and salted, was renowned. In 1750 it was recorded that large quantities of fish were caught in spring and summer. Most of it was destined for local consumption, only the best dried ling finding a market in Penzance (*ibid*, 107). A letter of 1803 from Lord Nelson in Toulon to a friend in Plymouth thanks him for his present of Scilly Ling.

During the 1818-30 economic collapse of the off-islands a national appeal raised £9,000 to establish a commercial fishery. A fish cellar was built on Tresco, two 14-ton boats built for pilchard and mackerel fishing and another six repaired. Much money was spent on nets and other equipment but much more may have been diverted to the Hugh Town shipyards. The pilchard business appears to have made a fair start but soon collapsed although briefly revived in the early twentieth century (*ibid*, 107).

The Sennen Fishing Company unsuccessfully attempted to establish a seine fishery in Scilly in 1870, but after two years of failure abandoned the attempt (Noall 1972, 129).

The completion of the London to Penzance railway in 1865 gave a great impetus to the exploitation of Scilly's fishing grounds. From 1869 to the 1890s the Mount's Bay mackerel luggers often landed their catches at St Mary's, as did the ketches and yawls from Yarmouth and Lowestoft, popularly called the 'Yorkies', resulting in at least one famous fishermen's fight in Hugh Town. The fishing prospered with the new flower industry as the shipbuilding and piloting died. Often there were two or three hundred fishing boats in the islands during this time (*ibid*, 108-9).

Shellfish, particularly limpets, continued to be valuable dietary supplement. One of the few studies of Scillonian domestic middens is that of the midden associated with an early nineteenth century building on Samson (Mason and Hayton 1977; Mason 1984). Although other uses such as soil enrichment or fishing bait have been suggested in view of the large numbers present it seems likely that limpets at least occasionally formed part of the diet. The value of a foodstuff such as limpets lies in the reliability of the resource and ease of exploitation when more desirable sources of protein might be in short supply (Light forthcoming). Limpets and shrimps were largely exported in the later nineteenth century and less so until WWII. Since then shrimping has mainly been a seasonal leisure activity (Noall 1972, 108).

During the 1930s the majority of Scillonian fishermen moved into passenger launches for the tourist trade and local fishing became limited to the catching of lobsters and crabs for the hotels or the Penzance market (Gill 1975, 108). Today there are only small-scale fisheries around the Islands, although all the waters are fished. There are currently only 16 commercial fishing vessels in Scilly with some additional potting and fishing by individuals. Shellfish (including lobster, crab and crawfish) constitute two-thirds of the catch.

Evidence for fish processing is represented in the Cornwall and Isles of Scilly HER by only two records. Just above the shore on the east side of Old Town Bay is a deep rectangular trough cut out of a single granite block measuring 2.4m long by 0.9m wide by 0.9m high, with sides 0.1m thick. According to Troutbeck (nd) it is was used for salting, when all the fish of the Islands were brought here for curing and stages were erected in the adjoining field for drying fish in the sun, he estimated that the trough will hold eighteen Winchester bushels and was dug from Salakee Down. At both ends the trough's inner faces slope inward. Incisions in one of its outer corners may be associated with lifting tackle.

Excavation of a drystone sub-rectangular building in the cliff face on the east side of North Hill, Samson in 1971 produced evidence suggesting a possible fish-smoking house. Inside was a stone-built furnace 1.2m long by 0.6m wide by 0.9m deep (Neal forthcoming a).

At the southern end of Appletree Point, just north of Long Crow, there is a long rectangular shellfish bed, bordered with small edge-set stones, which probably represent part of Augustus Smith's unsuccessful attempt to start an oyster fishery. It lies roughly at LAT level and was photographed by Dave Hooley in 1997.

9.6 Settlement

9.6.1 Introduction

Many of Scilly's modern settlements are historic in origin. Most farms are on the site of medieval or at least early post-medieval ones. Old Town is a settlement of twelfth century origin and the churchtowns on St Martin's and St Agnes probably also date back to that time. Following the construction of Star Castle in 1593 the focus of settlement shifted from Old Town to Hugh Town which has an early seventeenth century foundation. The early date of a settlement increases the likelihood of modern development disturbing buried archaeological remains. In addition to the potential for surviving buried remains, many of the buildings within the present settlements are post-medieval historic structures, not just within the main built environments, but also within farmyards where in addition to the farmhouses, nineteenth century (and sometimes earlier) barns, byres, glasshouses and packing sheds represent specific types of farming activity.

Scilly's vernacular architecture was first appraised in a seminal study of the regional styles of the west of England (Richardson and Gill 1924), it was also described briefly by Geoffrey Grigson (1948, 62) and David Bland in John

Betjeman's Shell Guide to Cornwall (1964). The 'Scilly Isles' occupy three and a half pages in Pevsner's Cornwall (Pevsner 1970, 208-11). In 1980 the Isles of Scilly Museum published a short well-illustrated booklet 'The Buildings of Scilly' by Peter Laws. In 1996 'Scilly's Building Heritage' by Peter Madden was published in the Twelveheads Press 'Heritage' series (Madden 1996).

A rapid examination of the buildings of the Isles of Scilly suggests the following groups and types of architecture that appear in the Islands and some examples of each:

Domestic Buildings: Houses in Hugh Town and Old Town that date back to the seventeenth, eighteenth, and nineteenth centuries ranging from small vernacular cottages to larger polite houses, Tresco Abbey, Scilly's twentieth century architecture and the challenges of modern development in an historic environment. Purpose-built hotels could be considered in this category.

Religious Buildings: Old Town Church, the remains of the former medieval priory within Tresco Abbey, Anglican churches on each of the islands, the various present and former Methodist chapels, the Roman Catholic Church, gravestones and memorials in churches and churchyards.

Public Buildings: Town Hall, Post Office, Museum, schools (old and new), reading room on St Agnes.

Agricultural Structures: Windmills, farmsteads that need to be considered as integrated complexes and not just for individual listed or unlisted structures.

Maritime: Lighthouses, day marks, harbour arm and buildings, lookouts, gig sheds, structures associated with fishing and smuggling.

Military: Old Blockhouse, King Charles' Castle, Harry's Walls, Star Castle, Cromwell's Castle, the Garrison's defences including buildings in the Garrison including the Powder House, Newman House, the buildings flanking the gate and the c1900 Defended Ports structures, St Martin's telegraph station, Telegraph Tower, Tresco Seaplane base and World War II structures on St Mary's.

Commemorative structures and street furniture: Monument to Augustus Smith on Tresco, K6 phone boxes, commemorative public furniture, street lighting

Uninhabited islands: Evidence of the settlement on islands such as Samson, St Helen's, Tean, will need to be considered. Samson's vernacular farmsteads are particularly significant archaic survivals – can the same forms be found on other islands but disguised by modern reuse?

9.6.2 The traditional post-medieval buildings of Scilly

Summary

An assessment of the historic buildings traditions of the post-medieval period was an important element of SHERF. Some work has been done on this subject before but there has never been an analysis that has looked at all building types on all the islands where traditional post-medieval buildings survive. This study attempts to identify the characteristic building traditions through its building types throughout the islands and to identify what might usefully be achieved by more intensive examination. Results of this brief study show that whilst some particular building types have been examined in detail others have had only superficial analysis and there are some building types that are at risk of almost total loss. It has also been established that the Isles of Scilly contain a built heritage that is unique and very special. The character of the traditional buildings in Scilly deserves better recognition and needs more thorough analysis and interpretation. The full illustrated version of this section of the report is available online on the SHERF webpage.

Aims

The aim of the study was to identify the interest and importance of the Scilly's historic building traditions and to place them in a wider context that might lead to further related research, collation, and investigation.

Methods

The study was predominantly a desk exercise to collate and assess available information about the traditional buildings of the Isles of Scilly. This included publications and reports, and the compilation of the listed buildings descriptions from the English Heritage Images of England website with photographs of most of the listed buildings (deposited with the project archive and available online on the SHERF webpage). Discussion relating to further work has been inserted usually following each building type section.

The built tradition

Context

Scillonian granite and in some cases, granite from Cornwall, are the principal building materials used on the islands. The granite is usually bedded in local earth mortar (subsoil) called *ram* in Scilly ('rab' in Cornwall). Granite ashlar, more likely to be used for higher status buildings is usually bedded in lime mortar.

The older roofs coverings that survive are scantle slate that was imported from North Cornwall. However, the earlier roofing tradition for all but the most prestigious buildings was thatch. This is generally called 'rope thatch' in Scilly due to the ropes that were used to hold the used over the thatch and held in place by stone weights to protect the thatch from the high winds that are common on the islands. There are now no surviving thatched roofs but good evidence for their former existence is contained in old photographs, particularly those in the Gibson Collection. Further evidence is contained in many of the surviving buildings. This evidence includes heightening of buildings from when they were adapted to accept slate roofs and often to insert upper floors to buildings that had been built as single-storey structures.

An important source of information about the design of traditional buildings that were originally roofed in thatch are many of the buildings of the ruined settlement on Samson that, except for deterioration, survives virtually unchanged since the settlement was abandoned in the mid nineteenth century as part of the educational and other reforms that were being carried out by Augustus Smith, the then governor of the islands. Elsewhere there are a few buildings that retain their single-storey appearance but many that display their former roof lines in heightened gable ends.

Settlement patterns

The settlement patterns that now exist in Scilly have evolved as a result of many factors including:

- topography;
- relationship to the sea;
- access;
- land use potential;
- community considerations; and
- reforms by Augustus Smith in the nineteenth century.

The only proper 'town' in Scilly is Hugh Town on the largest island of St Mary's. This was built on an isthmus of land between the main part of the island and the Garrison (a defended headland), originally to service the garrison and passing ships. The town is served by a harbour. On the opposite side of the isthmus is Old

Town, a smaller settlement that grew up relating to a Norman church and a sheltered cove.

Elsewhere, settlements are small or dispersed. Generally the most recognizable larger groups are hamlets rather than villages in terms of their size but churches that were built in the nineteenth century on St Martin's, Tresco, Gugh and St Agnes mean that the small settlements to which these relate are technically villages. The use of names such as 'Higher Town', 'Middle Town', and 'Lower Town', as used on the islands of St Martin's, Bryher, and St Agnes are ways of describing their relative locations as small settlements. The word 'town' in Scilly is often used as an abbreviation of 'townplace', a term also used in Cornwall as describing a small settlement.

Throughout the inhabited islands the distinction between settlements and farmsteads is often blurred and historically complex, usually relating to land use and distribution, and the way that individual Scillonian families have affected their development.

The main traditional industries of the islands are farming, horticulture, and fishing or maritime related. Typically, islanders would need to be involved in more than one of these industries to survive, and this is still true for many islanders today. The traditional economy of the islands now is tourism that depends on a ferry and cargo boat link with Penzance in Cornwall, and air transport, that comprises a helicopter service to both St Mary's and Tresco from Penzance, and a light aircraft passenger service from either Newquay or Land's End to St Mary's.

Building types

The range of principal building types in Scilly is a result of many historical factors including: defence of the islands, farming practice, maritime activity, and the housing and mercantile requirements of the islanders.

Date periods

Most of the buildings discussed in this report date from the post-medieval period but there is small number of buildings from the medieval period or earlier that have relevance to the evolution of Scilly's built traditions. Except for buildings relating to the defence of the islands that mostly date from the sixteenth or seventeenth centuries, there are very few buildings that are pre-1700. The vernacular buildings that characterize the simple dwellings of Scillonians date mostly from the late eighteenth to the middle of the nineteenth century.

Materials

Granite is the principal traditional building material in Scilly. Many of the hedgerows are built with granite rubble, the stone mostly probably resulting from field clearance. Most of the roofed buildings are constructed from granite rubble bedded in earth mortar. Granite has been used for the construction of buildings in Scilly since prehistoric times. From the late sixteenth century granite has often been dressed to shape in order to create more refined structures.

A cross section through a truncated length of defensive wall on the Garrison, St Mary's provides an opportunity to examine the construction of this walling through its depth; the battered (sloping) outer faces are constructed of granite ashlar but the inner core is constructed from granite rubble.

Sources of the granite used on the island are believed to be either from field clearance or from small quarries on the islands. However, granite from Cornwall was brought over for the construction of the Bishop's Rock Lighthouse. There has been a long tradition for lime-washing granite rubble walls. During the 20th century many buildings were stripped of their historic layers of lime-washing now leaving the impression that it is a rare tradition.

Rock-faced granite has become part of the Scillonian tradition. The more established use of granite rubble appears to have been a strong influence in the development of an exaggerated rustic form of this material as used at the Post Office (1897) at Hugh Town on St Mary's, probably by Thomas Algernon Dorrien-Smith, Lord Proprietor (of Scilly) and architectural amateur (list description), who was responsible for the design of the church on Treco (q.v.). This way of using granite is repeated in a number of buildings in St Agnes including: porches at Palace Row, New Grimsby; Pentle House where rock-faced granite is used extensively, and for the porch of a house at Old Grimsby. Rock-faced copings on the gateway to the harbour at Hugh Town appear to have a design affinity with these examples, and there may well be other examples of this sort of work in Scilly.

Granite ashlar is used as a facing material on many of the more prestigious buildings, usually bedded in lime mortar, and even some of the architectural more modest buildings are also faced with granite ashlar to their front walls.

Dressed granite is used for many purposes and in a variety of ways. Often the granite is only lightly dressed from granite rubble blocks so that the desired flatness is achieved where it matters.

Stucco is also used, more often as a prestige material, particularly on some of the buildings in Hugh Town; it is also used to provide a more refined finish on some of the more rural buildings.

Scantle slate roofs survive on many of the older buildings or this very traditional material has been used again when buildings have been re-roofed. However, many of the older buildings had already been re-roofed in slate of uniform size or with the inferior covering of asbestos fibre cement.

The 'quarries' from where the slate was extracted were probably located in North Cornwall, now represented by two surviving quarries. The largest and oldest quarry is at Delabole (the Delabole Slate Quarry) The Delabole Slate website claims the following: 'The Delabole slate quarry is one of the largest of its type in England and has run continuously since the fifteenth century making it the oldest working slate quarry in England. In the reign of Elizabeth I the five quarries on the site of the now larger pit assumed considerable importance delivering slate to Brittany and the Netherlands. In 1841 the five quarries combined to make the Old Delabole Slate Quarry.' The other main quarry is at Trevillet, near Tintagel, an old quarry that was reopened about 50 years ago when it became part of Mill Hill Quarries Ltd. This company own three quarries including Trevillet and Mill Hill quarries near Tavistock in Devon. The company website states: Mill Hill Quarries "have been in work for many years.....for two centuries or thereabouts, for roofing slate." extract Mines & Quarries Report to Duke of Bedford 1857.

The scantle slate tradition has typically 14 inch (350mm) long slates for the eaves courses diminishing by one inch length sizes (each size used for a number of courses of slates) to a 6 inch (150mm) length at courses towards the ridge. This tradition makes good use of the smaller slate sizes that come from quarries. The slates are fastened to laths that are spaced according to the coursing, the lath spacing further closing together wherever there is a change of course size. This change is called a 'twist' and this can easily be seen when the roof is viewed from underneath. The slates are fastened with split wooden pegs projecting to the underside so that they hook over the laths. Where the fastening opportunity coincides with rafter locations the slates are nailed directly to the rafters. Scantle slate is either dry laid or wet-laid, in both cases usually rendered underneath onto the laths with either earth or lime mortar. Where earth mortar is used there is usually also a thin layer of lime mortar added as a final finish. This mortar has two main practical functions: it prevents wind-driven rain from entering the building and it also prevents condensation from occurring under the slates and

therefore prevents frost damage. Many old roofs are suffering from powdering caused by expansion of successive laminates of slate caused by frozen condensation.

Thatch was once common in Scilly for cottages, small houses and farmhouses, as well as outbuildings but this tradition does not survive. The small house called 'Thatch' at Old Grimsby on Tresco is thought to have been the last building in Scilly to have had its thatched roof replaced (in 1989). Many buildings were heightened in the later 19th century when their thatched roofs were replaced with slate.

Terracotta tile is a further traditional roofing material that was imported to Scilly, usually as a ballast cargo. This was more commonly used on outbuildings.

Chimneys on most of the earlier buildings are built from granite rubble or with dressed granite. The latter material was used so that chimneys could be built to more slender proportions needing only one thickness of stone. The traditional for the use of stone for the construction chimneys survives later in Scilly than in Cornwall though this tradition was used quite late in West Cornwall, and within other areas with granite outcrops.

Granite chimney stacks in Scilly represent a unique survival of a tradition that dates back to at least the 16th century. Enough examples of these survive to enable their detailed study and distribution, their relationship to different building types, and the differences in their character and construction. Granite stacks are a very important part of the historic building character and interest in Scilly. Consequently, their survival is a finite resource that cannot afford further loss or alteration.

Brick has been used for chimneys on later buildings or where higher numbers of fireplaces required multiple flues within each chimney. Brick chimneys also deserve detailed study and recording together with a strong policy for their repair and conservation.

There has never been a thorough analysis of the building materials of Scilly. There is much work to be done including the changes in tradition through time, the source of the materials and their distribution, the names of architects, builders and crafts people, and the cultural impact of changes of fashion and building methods and the introduction and function of various building types. The location and understanding of granite extraction and dressing, including quarries, is worthy of a special study.

The roofing tradition in Scilly deserves a special study, both of records of the former tradition for thatch, and the parallel later traditions of slate, and imported tile. Surviving standing buildings provide an opportunity to study the traditional character of roofing materials plus the extensive evidence for buildings that were formerly thatched.

It is strongly recommended that all buildings that have evidence for the former uses of thatch are properly catalogued and recorded. Also, there is a strongly-held view by many on the islands that a selected building should be re-thatched with rope thatch to display this important tradition.

Plan forms

The subject of plan forms would require extensive investigation of internal arrangement within surviving traditional buildings for the subject to be presented with confidence and accuracy. However, much can be gleaned from external examination and from the few buildings that have interiors known to Henrietta Quinnell or can be established from ruined buildings, or from list descriptions. External examination is usually sufficient to establish whether a building is single-depth (one room deep) or double-depth (two rooms deep), also whether a

building has one room at the front accessed by a side passage as with pairs of cottages, or has two rooms at the front usually separated by a central passage or entrance hall. Generally plan types are similar to those used on the mainland. What is distinctive in Scilly is the small scale of so many of its buildings. The simplest buildings in Scilly are single storey and have only two rooms, a kitchen and a parlour, plus sometimes an unlit attic within the roof space.

Building types examples

Domestic buildings

Cottages can be categorized into a number of types that can be better explained by discussion of selected examples.

Single-storey cottages are a building type that is now extremely rare in Scilly but was probably one much more abundant. In many ways these buildings resemble crofters' cottages in Scotland or 'bothies' in Ireland and Wales. Many of the best examples now survive as roofless ruins. Others remain as altered structures that were heightened when proper upper floors were added.

Study of the smaller houses of Scilly may best be achieved as a thematic exercise so that the buildings get the more intensive assessment that they deserve. Their similarity to other small buildings in Ireland, Scotland, Wales, and elsewhere, needs to be better understood and comparisons should be made taking into account all the factors involved in the development of the tradition for these simple but evocative buildings.

One-room-plan cottages are very rare in Scilly and are usually found added to small houses. A development of this plan form is to have one room at the front and a service room at the rear.

Pairs of cottages whether with single-depth plans, or double-depth plans, are a common building type in Cornwall, usually with a pair of doors together at the front (mirror-image pairs). This building type is found particularly in the industrial towns and villages. However there appears to be little such building tradition in Scilly (further fieldwork is required to confirm this suggestion with confidence). There are examples of similar one-room-plan cottages built next to each other but these are the result of later addition with one cottage added to another. There are two examples of this on Samson: Houses D and E and Houses Q and R. These are ruined cottages with doorways set to the same side of each 'pair'.

The way that rows of cottages/houses have evolved needs to be recorded as a stylistic group. Much can be learned about the sequence of build by studying the quoin-work that usually survives.

Rows of small houses survive in reasonable numbers in Scilly. Most of the older vernacular buildings in Scilly are small double-fronted houses. With respect to identifying building types under English Heritage guidelines (as used in list descriptions) a house is identified as having at least two ground-floor rooms side-by-side. This means that most of the dwellings in Scilly should be described as small houses, houses, farmhouses, or town houses. Consequently, there are very few dwellings that should properly be called 'cottages' though that is probably what many of the smaller houses are popularly called.

Planned terraces, except for specialist housing such as coastguards' housing, are uncommon in Scilly. Most are concentrated in the residential streets of Hugh Town. Grouping of traditional housing clearly has many causes and effects, particularly with respect to the culture and living conditions of the islanders of Scilly. Research needs to be carried out into the way that groupings have come about, their distribution, and their particular character. For example, to what extent have the buildings evolved in a piecemeal way and to what extent have others been planned? The management of the islands since Augustus Smith

became Governor is clearly a strong factor but this needs to be better understood and the extent of his influence needs to be identified and described.

Principal town houses in Hugh Town stand out from the crowd. These are usually houses built for merchants or worthies of the town.

Town houses include many elegant houses in Hugh Town. Some are detached but most adjoin other houses of a similar period, or are within a row of buildings of many different dates. What usually distinguishes them from their more modest neighbours is: good proportions, generous scale, and often classical symmetry or classical features.

Town houses with shops are an interesting building type within the commercial heart of Hugh Town, St Mary's. There are very few purpose-built shops. Most of the shops in the town are the result of town houses having been converted from houses to shops with retained living accommodation above. In many cases the conversion may well have continued the original function of the building as many town houses were originally built as merchants' houses. However, in the nineteenth century and early twentieth century conversion of a town house to accommodate a shop usually meant installing a 'show' shop front that would promote and exhibit the goods that were being offered for sale. Such alterations often meant considerable alteration to the fabric of the building, changing its character forever. It is therefore very fortunate that many of these conversions are now valued for their own particular character. Sometimes the stone frontages were carefully altered and stonework made good to disguise the changes but occasionally, where changes were difficult to hide a whole frontage was stuccoed to conceal the alterations.

Town houses deserve attention as a separate group. The story of their builders, architects and occupants is more likely to be unearthed than studies of the more modest building types. However, this can only be achieved by determined research. Results of such a study together with the recording and analysis of the building is likely to yield invaluable results that are important to the story of Scilly.

A much better understanding of town houses with shops is possible with detailed research that includes reference to trade directories and other documentation of the commercial activity on the islands.

Notable houses in Scilly are identified here as those that are particularly special or important such as Hugh House, St Mary's or Tresco Abbey. Some have unexpected origins or were not originally built as houses at all but are nevertheless of considerable historic interest.

Some of the most important domestic buildings in Scilly have already been assessed in detail but many others have only received the most limited study, some of this as a result of the listing process. This building group promises the most detailed historical information that should be the subject of further research. Some of these buildings have been a strong influence over the building tradition of the islands from their architecture and methods of construction.

Farmsteads include farmhouses and small rural houses in Scilly, building types that are often architecturally indistinguishable from each other. A farmhouse is usually a small house that was built as a farmhouse or has been used as a farmhouse. Most are detached but they sometimes adjoin other houses, or have been extended, often for extended families. Most of the farms are very small and would usually be classified as smallholdings or horticultural holdings. Some of the settlements have evolved from farmsteads and have acquired extra dwelling houses over time. The only planned group of farm buildings belongs to the Abbey Farm, a group that includes a former barley mill and fish smoker of c1835. These farm buildings have been converted to holiday accommodation.

Farmsteads require much research and examination if they are to be better understood and their importance in the story of Scilly properly recognized. Despite the fact that so many farm buildings have now been converted there are still many that retain their original character. Similarly, many of the houses that may have been dubbed farmhouses need their origins explained and other domestic buildings within the settlement investigated.

Industrial buildings

Industrial buildings appear to be an unusual building type based on the surviving buildings. Scilly probably never supported a strong manufacturing, processing, or storage function, and consequently there are very few buildings that display an industrial heritage. Industrial buildings are an interest group that requires considerable study and research. The buildings that were used for industry need to be identified and recorded and research targeted at their origins and their functions.

Community use

Anglican churches represent a long tradition for Christian worship on the islands. Early Christian sites include the ruin of the pre-Reformation St Nicholas' Priory on Tresco, medieval church and oratory on St Martin's, remains of a pre-Conquest chapel on Tean. Old Town church is probably the oldest roofed building on the islands. There is a 19th century Anglican church on each of the inhabited off islands but St Mary's has two Anglican churches: the original Norman church at Old Town and a 19th century parish church in Hugh Town. Churches on the off-islands replace the earlier church buildings noted by the Cornish antiquarian, Borlase as having been built in the same style and to two different sizes, and all built for the Godolphins. The new church on St Mary's was built by Augustus Smith between 1836 and 1838.

There is only one vicarage: the 'Chaplaincy', near the church in Hugh Town. There is also a Catholic Church of 1860 at Higher Strand, Hugh Town, St Mary's, originally built as St Mary's School for Girls.

While much is known and much has been written about the buildings that represent the established church in Scilly, the stories that they contain in their records, in their monuments, and within their burial grounds needs to be further assessed and collated. Also, the buildings themselves deserve better analysis, and recognition for the influence they have had on the evolving building traditions of the islands.

Methodist chapels are an important building type in Scilly as they represent a cultural change to the way of life of the inhabitants of the Isles of Scilly. As happened in Cornwall, during the 19th century, Methodism was competing with the established church and Methodist chapels were built on all the currently inhabited islands except Tresco. There are three (identified) Nonconformist chapel buildings on St Mary's. Nonconformity was once a very influential aspect of the culture of the isles of Scilly and deserves further study, particularly with respect to its surviving buildings. Two chapels have already been converted to domestic use and the most important chapel is used as offices. Consequently, the two chapels that remain in use as places of worship should be recorded as a matter of urgency.

Educational use

In 1834 Augustus Smith was granted a lease by the Duchy of Cornwall. As Lord Proprietor of the Isles of Scilly he became a reforming governor who unlike previous governors took a great interest in the people of the islands and made his home there. Until his death in 1872 he made great changes to the islands. "He devoted his life unselfishly to those Islands and added greatly to their beauty"

Before coming to Scilly from the home counties Smith had already been a keen advocate of improving education for the common people "When I find youths, the progeny of hereditary paupers, simply through being able to read, write and cipher, readily obtain in London apprenticeships in various trades, I felt the true or at least the main clue was discovered". As a result of his concerns Smith set up a number of non-denominational Parish Schools that were to survive until taken over following the 1870 Education Act. When he came to Scilly he was determined that all the island children should have a good education. During the mid nineteenth century Smith had schools constructed on St Mary's, St Martin's and St Agnes and effectively made education compulsory. In order to achieve this, the declining population on Samson was moved to other islands so that the children could attend school regularly.

The 1854 boys' primary school building at Carn Thomas was designed by Augustus Smith. This was later extended and is now used as the infant and junior school on St Mary's.

Public Houses

Public Houses as a building type in Scilly are not a straightforward area of study. There are probably no old purpose-built public houses on the islands. All the traditional buildings now used as public houses appear to have been adapted from former houses or working buildings.

This building type is complicated with respect to its origins and history. It is very important to community life in Scilly today but the role of public houses at earlier times needs to be unravelled as a detailed research project together with close examination of the surviving and former public houses.

Defence related buildings

The Isles of Scilly are strategically placed as a good invasion base at the entrance to the western approaches and consequently many structures have been added to the islands to counter this threat.

The defence buildings of Scilly have benefitted from much investigation in recent years and many authoritative reports have been written. However, there is still much to be learned and explained. These buildings need to be studied as a thematic group with all the available information brought into play but with unanswered questions targeted. For example, when the gun platform was added to Cromwell's castle the original stone staircase was cut away to make a new doorway into the building and the walls made good. This kind of analysis is often lacking from available studies. Reconstruction drawings of the defence buildings explaining the way that they originally functioned and the ways that they have been altered to fulfil advancing technologies would greatly add to our understanding of these important buildings.

Maritime use buildings

Gig sheds, or their ruins, survive on the islands of St Agnes, Bryher, St Martin's, Samson, and St Mary's. These buildings were constructed to house the pilot gigs that became an important part of the economy of the islands. All are constructed with granite rubble and all are located for easy launching of the gigs.

Lighthouses have a long history in the Isles of Scilly. The lighthouse on St Agnes was built in 168 and is the one of oldest lighthouses in Britain. The Daymark on St Martin's was built in 1683 and must be one of the earliest examples of this building type. The lighthouse on the Bishop's Rock is a triumph of engineering over nature. The first lighthouse, built from steel between 1847-9, was washed away in a storm in 1850! The present lighthouse is built from interlocking blocks of granite ashlar initially between 1852 and 1858 but had to be strengthened by adding an outer sheathing of granite ashlar (and heightened) that was completed

in 1882. It is the tallest lighthouse in the British Isles. Round Island lighthouse was constructed in 1887.

Quay walls or harbours of some kind exist on all the inhabited islands. Some of these have been upgraded in recent years by adding an outer sheathing and by extension. There has been a harbour at Hugh Town since the early 17th and this has been extended many times. The older granite masonry is extremely interesting. The blocks of granite are shaped so that they fit together as tightly as possible.

Harbour walls deserve a special study, both of surviving walls and of archive photographs of walls that can no longer be seen. They should also be compared to harbour walls on the mainland. The walls on Scilly are an important part of the character of the islands. The listing status of the main quay should be re-assessed.

Domestic outbuildings

Domestic outbuildings include earth closets, back houses, and the buildings that were used for small scale flower packing and other horticultural uses. All are important to the story and character of Scilly.

The modern period (mid twentieth century onwards)

New-build (traditional) The older building traditions in Scilly have been a strong influence on the design and construction of buildings in the modern period. Granite is still a favoured material and has been used well in some of these buildings but rarely with such skill as when granite walls were the prevailing tradition.

New-build (contemporary) With the shortage of traditional buildings on the islands much of the new-build has had to be constructed with alternative materials that include rendered concrete block and timber-frame construction.

Discussion

The results of this brief study demonstrate that the buildings of Scilly are important for many reasons. They include buildings of unique or rare building types and that these buildings are the result of a distinctive island culture. The limited choice of building materials has contributed to a harmonious vernacular built tradition that in many places appears to grow from the landscape that surrounds it. In other places there is a more polite kind of architecture, mostly within Hugh Town on St Mary's. Adding to the diversity are the various specialist building types and structures, most of which share the same materials of construction but add interest in their design fit for function. Comments about each distinct building type have already appeared in the appropriate sections of the report. What the study has also shown is that interest and importance is not always about status or architectural quality. Many of the simple buildings of the working people of the islands are now recognized as being an essential part of the story of the islands and their simple unpretentious design and appearance attracts the admiration of islanders and visitors alike. Some of these simple buildings are now so rare that they must be considered as a threatened building type. However, all of the traditional buildings of Scilly are significant and contribute to the whole character and interest of the islands.

9.6.3 The historical development and topography of Hugh Town

There has been settlement in the area of what is now Hugh Town from at least the Bronze Age. Traces of a group of roundhouses of that period have been recorded at Porthcressa and an apparently extensive late Iron Age – early Roman cist cemetery together with lynched fields and a possible roundhouse lie under post-War housing on the south side of the town (Ashbee 1954; Dudley 1960-61).

There are also hints of activity in the medieval period. Early medieval grass-marked pottery has come from a shell midden on the lower slope of the Garrison (Ashbee 1954) and sherds of imported French pottery dating from the late twelfth to the fifteenth century are recorded from Porthcressa (Allan 1991, 93). Charles Thomas (1985, 217) has suggested a fourteenth-century date for a stone-built chapel which formerly stood close to the shore near the Bank and survived, converted into a dwelling, until about 1830 (*ibid*, 189, 215-7). Local tradition of a 'great quantity of human bones' found on the south side of the former chapel (Troutbeck *nd*, 60) suggests a burial ground attached to it, presumably pre-dating the twelfth-century foundation of the church and graveyard at Old Town. This in turn suggests an earlier religious structure at the Bank and presumably some nearby settlement.

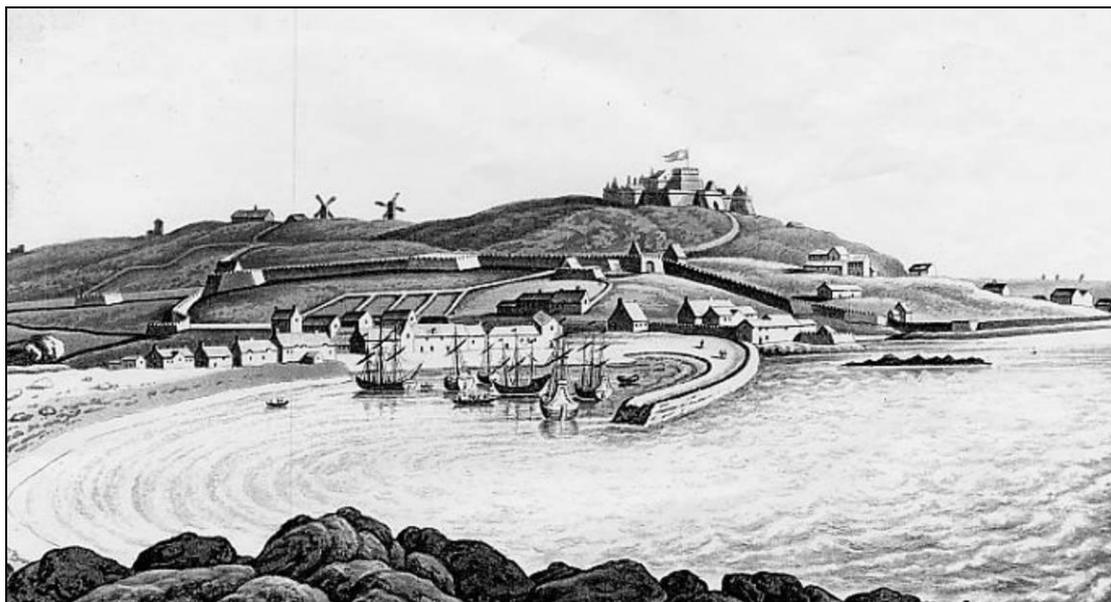


Fig 9.3 An early nineteenth-century reproduction of a view of Hugh Town taken in 1669 (Magalotti 1821, facing page 112)

The present town, however, owes its origins to the construction of Star Castle and associated structures in the 1590s and in c 1601 of a quay on the sheltered northern side of the island directly below the gateway to the military complex (Cox and Thorp 1993; Bowden and Brodie 2011). (The proximity of the medieval chapel to the location of the new quay suggests that this may already have been an established landing place.) Early development of the settlement was apparently slow: in 1652 there were fewer than 20 houses in the 'Hugh or New Town near the new castle', with another handful within the Garrison and a further eight or ten around Carn Thomas and Buzza Hill (Pounds 1984, II, 139-40, 144-5). By comparison, the survey recorded around 40 houses in the area of the medieval settlement at Old Town (*ibid*, II, 140-1, 148).

Early visual representations of Hugh Town confirm its small scale and illustrate the early origins of several distinctive elements of its historic topography. Views taken in 1669 and 1715 (Fig 9.3; Bowden and Brodie 2011, fig 38) show an open area south of the quay, below the gate in the Garrison curtain wall. This formed the landward side of a working beach where boats could be loaded and unloaded in the shelter of the quay. This area partly survives as the Bank, now enclosed and with the former long-standing open access to the shore preserved only by the slip adjoining the Atlantic Hotel.

The early settlement clustered loosely around this landing place, straggling along the foreshore and extending south east as far as the triangular space fronting the present Lloyds TSB. Beyond this, what is now Hugh Street had a more planned

aspect, shown in 1715 with a straight alignment and a continuous row of buildings on both sides as far as the junction with the present Garrison Lane. This appears to have been the furthest extent of the settlement in 1669 but by 1715 it had expanded further east along the two roads which diverged from this point, now fossilised as Silver Street and the narrow link between Hugh Street and the Park. By 1715, a scatter of buildings also lay along what would become Garrison Lane, Well Lane and Jerusalem Terrace, set among small fields or gardens on the lower slopes of the Garrison. Development on the rear of some of the plots on the north side of Hugh Street established what subsequently became the south side of Thoroughfare, facing the foreshore and linked by an alley to the small square which now fronts the *Bishop and Wolf* pub. This latter area originated as an open space at the edge of the settlement, but gained importance through construction on its south-west side of a house for the Godolphin steward for Scilly, rebuilt after a violent storm surge burst across the isthmus in 1744 (Heath 1750, 26).

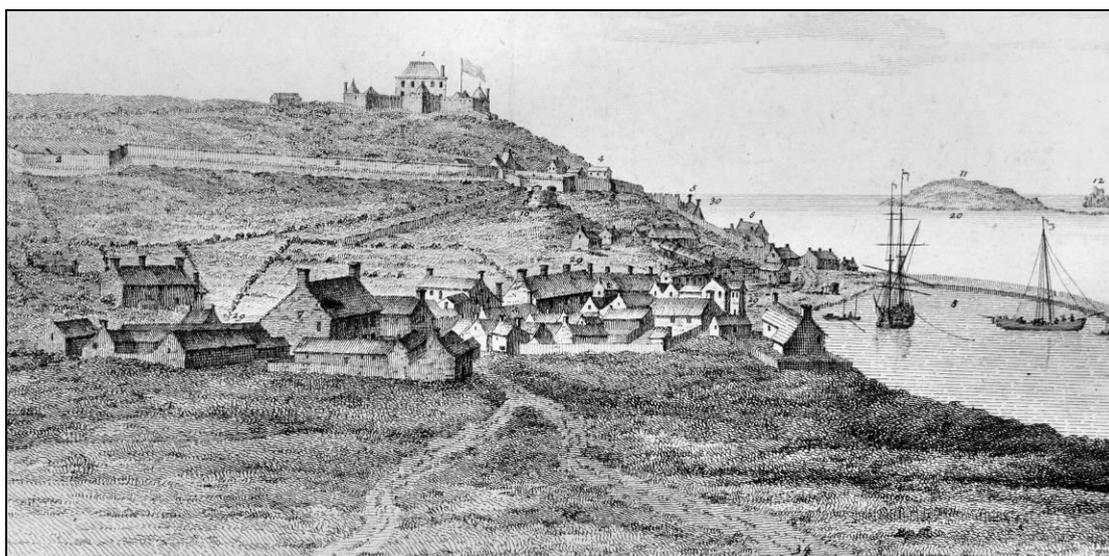


Fig 9.4 William Borlase's depiction of Hugh Town in 1752 (Borlase 1756, pl 3)

By the mid eighteenth century Hugh Town had developed beyond its early primary role as a service centre for the military complex on the Garrison to become a central place for the whole of Scilly. It was the Customs port and profited from servicing vessels sheltering in the Pool from bad weather or adverse winds. Heath (1750, 26) described the town as 'one long and two cross streets, of strong stone-built houses, wherein are several shop-keepers and public house-keepers . . .' A few years later William Borlase reported the town 'much improv'd of late in building . . .' (Borlase 1756, 12-13) but his depiction of 1752 (Fig 9.4) suggests little expansion beyond its 1715 extent and the building he referred to was probably replacements of structures damaged in 1744 (Heath 1750, 28-9). Borlase's illustration again shows the Bank as an open space behind the foreshore with vessels moored in the shelter of the quay. At the south-east edge of the town, the new steward's house dwarfs clusters of single-storey structures along Silver Street and on the east side of the alley from the space fronting the *Bishop and Wolf* to the present Thoroughfare, each group apparently set within a compound. Roads to the 'country' – Old Town and the eastern parts of the island – are shown diverging from this eastern end of the settlement, their alignments establishing what subsequently became the north and south sides of the Parade (now the Park).

Spence's *Maritime Survey* of Scilly (1792) shows little change over the preceding four decades, but an original watercolour of Hugh Town in about 1800 (Kirkham, forthcoming) indicates a surge in building activity at the end of the eighteenth century. New buildings with their backs to the sea along the north-eastern side of

the Bank now blocked what had previously been a wide area of direct access to the shore and more building is apparent on Well Lane and at the lower end of Garrison Lane. The view also shows the initial stages in enclosing the space which subsequently became the Parade, depicting the surviving row of double-fronted two-storey houses at the west end of the north side and the present Riviera House fronting onto the space from the east. The Parade is shown open to the south and was clearly then at the eastern edge of the town. Beyond it on the track which later became Church Street was an isolated two-storey structure (perhaps the vernacular building now adjoining the Bell Rock Hotel); a long single-storey structure shown fronting onto the shore in the area of the present Lower Strand was perhaps similar to the cottage rows which survived into the early twentieth century on Higher Strand. Hugh House, the officers' quarters built in 1792 (Laws 1980, 10), dominated the town from immediately within the Garrison wall.

Contemporary descriptions suggest a thriving settlement. Henry Spry commented in 1800 on the 'many new Houses built within the last 20 Years' and remarked that the town had 'many good houses and a great number of inhabitants . . .' (Thomas 1979, 10). He additionally described typical building materials: 'The Houses are built with Moor Stone which is very plenty [*sic*] every where, they Cover the best Houses with Slate brought from Cornwall; but all the Common Houses are Covered with Straw, done down and fastened with Straw Ropes . . .' (*ibid*, 9-10).

Two decades later, George Woodley (1822, 166) described the town as 'one principal street about three hundred and twenty yards long [i.e., from the quay to the Parade], but very irregular both in its course and in the appearance of the houses; and of several lanes, alleys, courtlages, &c.; most of which are paved with round stones . . .' (*ibid*, 164). The present Lower and Higher Strand were by this time lined by a row of small houses extending almost to Carn Thomas (*ibid*, 171). This area was also a focus for Hugh Town's shipbuilding industry, which had begun in a small way in the eighteenth century but developed considerably in the early decades of the nineteenth. By the late 1830s four shipyards were active on the foreshores at Town Beach and Porthcressa (Davies 1988; Matthews 1960, 183).

The lease of Scilly taken up in 1834 by Augustus Smith required completion of a new church – the original island church near Old Town had become ruinous – and a large extension to Hugh Town quay. Both were achieved before the end of the 1830s and marked the beginning of another important period of change. In negotiating his tenure with the Duchy Smith ensured that he would be able to create building leases, to be taken up by local people 'who have realised a small capital of two or three hundred pounds in the shipping business' (Matthews 1960, 180-1). This is the context for the flowering of Hugh Town's distinctive 'Cornish Regency' architecture, particularly notable around the Parade and Church Street.

Smith's new church was located in a prominent position facing the settlement along the existing road from Old Town but well outside the then built-up area of the town. This axis between the church and the Parade, now Church Street, became a focus for development over the remainder of the nineteenth century. Most of the modest but well-designed terraces towards its western end were probably built as individual ventures during the later 1830s and 1840s and several of the more substantial houses are almost certainly of the same period, including Lemon Hall and the present Bell Rock Hotel. At about the same period a Bible Christian chapel was constructed in granite ashlar close to the west end of Church Street (Stell 1991, 57).

Church Street now has the air of a planned streetscape, rising gently from the green space at the Parade to the church and lined by a mix of genteel domestic

and institutional buildings; in fact it was created piecemeal over a period long enough to make it unlikely that any initial master plan was followed. Augustus Smith added an infant school to the original Bible Christian chapel on the north side of Church Street in 1854 – he built a boys’ school at Carn Thomas in the same year and a girls’ school on Lower Strand in 1860 (Matthews 1960, 170; Madden 1996, 38, 39) – but much of the east end of Church Street beyond Well Cross remained undeveloped until late in the century (Fig 9.5): to the south open fields rose onto Buzza Hill and photographs show the north side, between Church Street and the rear of properties on Higher Strand, as a large open space used to store timber for shipbuilding and later as gardens or flower strips (Arlott 1972, figs 90, 101, 104; Cowan 1997, fig 59; 2001, 31). A further terrace and a detached villa were built on the south side before the end of the 1880s but development on the north side ceased until a new Bible Christian chapel was built in 1899 (Madden 1996, 27). The terrace to the east of the chapel may date to the early twentieth century but the final plot on the north side was not occupied until St Mary’s Hall (now a hotel) was built in the late 1930s (*ibid* 1996, 27).

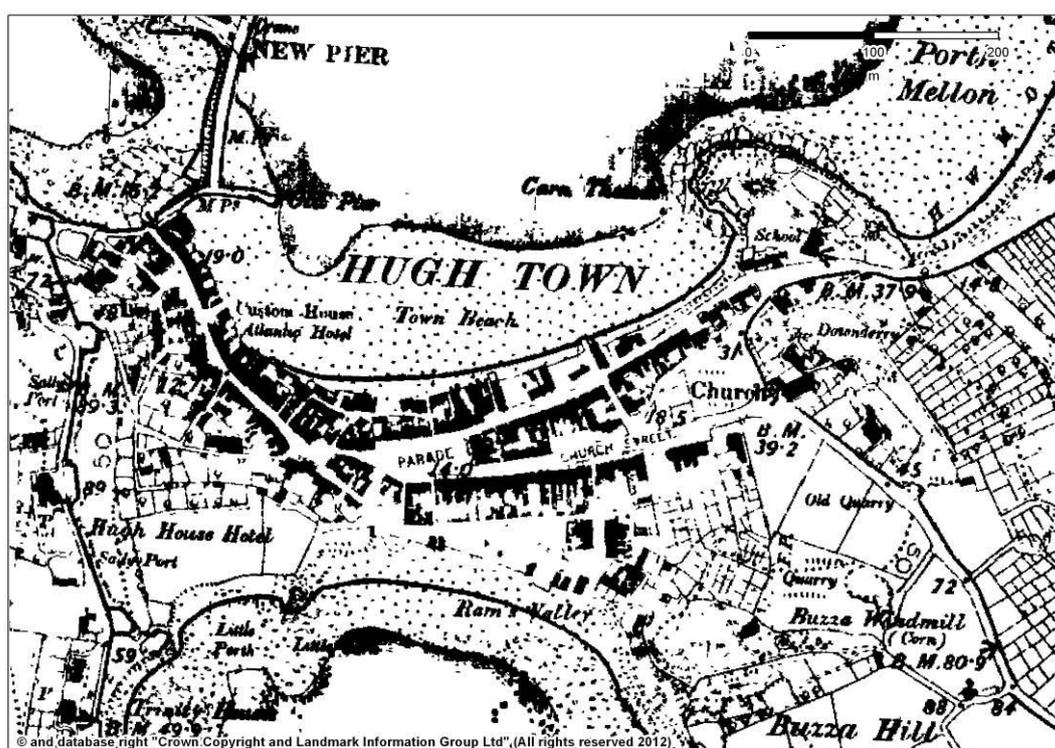


Fig 9.15 Hugh Town on the 1st edition Ordnance Survey 6in: 1 mile map, c 1890

Construction of the Town Hall on the Parade in 1889 (Madden 1996, 30) provided a prestige building to dominate the west end of Church Street. At about the same time the central area of the Parade was enclosed as a public park (Cowan 2001, 30, 31; cf Betjeman and Rowse 1974, fig 157), contributing further to the urban character and developing air of order and gentility around this part of the town.

Hugh Street and the Bank area also saw changes. The house from which Tregarthen’s Hotel subsequently developed was built above the end of the quay in Hugh Town’s distinctive ‘Cornish Regency’ style, and the small but imposing mid nineteenth-century house now occupied by Lloyds TSB was elaborated with a Doric-columned classical porch, enabling it to dominate the three-sided space east of the Bank onto which it faced. The scale and quirky rustic quality of the 1897 Post Office, designed by Augustus Smith’s nephew and successor as

proprietor of the islands (Madden 1996, 31), created a significant landmark in this part of the town.

Shipbuilding continued into the 1870s and the associated slipways, timber yards, smithies, saw pits and stores were scattered over both the Porthcressa Bank and Strand areas (Davies 1988). Early photographs show an industrial building, perhaps a sawmill, adjoining cottages immediately north of the church, facing the area used for storing timber (Llewellyn 2005, 40). The severe, well-constructed terraces of single and double-fronted dwellings on Higher Strand, Well Cross and Buzza Street reflect the prosperous, industrial character of these areas in the middle decades of the nineteenth century. On the Strand these probably replaced more humble housing: a small group of the older thatched houses survived at the eastern end of the Strand, close to Carn Thomas, until at least the late nineteenth century (Arlott 1972, fig 104; Cowan 2001, 22-3).

In 1920 the Duchy of Cornwall resumed the lease on the whole of Scilly except Tresco. It began a building programme on some of its properties in Hugh Town, directed by Duchy architects Sir Albert Richardson and C L Gill (Madden 1996, 14-15, 31). This included remodelling some significant buildings, among them Strand House, Newman House in the Garrison and the Atlantic Hotel (*ibid*, 33, 35, 38). The largest impact on the townscape, however, was created by replacing eighteenth- and nineteenth-century cottages and shops in Hugh Street with two new residential terraces (Laws 1980, 22). These were faced in coursed, finely-dressed granite and introduced a more ordered if rather severe aspect to the street. Further changes to Hugh Street occurred in the same decade with the construction opposite one of the new Duchy terraces of well detailed premises for Barclays Bank and the Isles of Scilly Steamship Co, the latter replacing the late eighteenth century market and council house (Madden 1996, 36).

In the three decades after 1950 Hugh Town experienced the most rapid and far-reaching period of change to the built environment in its history. From 1949 the Duchy sold the freeholds of much of its property in the town (Mumford 1967, 82). In the context of rapidly rising demand for visitor accommodation and facilities resulting from the national post-war boom in holidays and travel, the consequence was a surge of both new building and of extensions and conversions to historic buildings. In many instances, these substantially altered the character of the built environment through addition of features such as flat-roofed extensions, roof conversions and external stairways. The Council of the Isles of Scilly acquired land at Porthcressa and elsewhere for public housing (Bennett *et al*, 64, 72-3), but there was also a boom in private housing development, fuelled by demand for holiday and retirement homes. The result over the next two decades was dense development of the slopes of the Garrison, right up to the curtain wall, and large-scale building, predominantly of bungalows, on greenfield sites in Rams Valley, along the road to Old Town and on Jackson's Hill overlooking Poth Mellon. Several large bungalows were constructed just inside the Garrison curtain wall on prominent sites overlooking the town (Laws 1980, 28). New build within the core of the historic settlement was relatively limited, the most significant instances being the construction of new retail premises at the lower end of Garrison Lane in the late 1960s and a comprehensive redevelopment of Silver Street and the adjacent Porthcressa View in the mid 1970s (Laws 1980, 30).

This period also brought several new institutional buildings in the town, including the Isles of Scilly Museum, the secondary school and Park House residential accommodation for the elderly (Laws 1980, 26, 28; Madden 1996, 29, 40; Bennett *et al*, 88). Demolition of the late nineteenth century Holgate's Hotel on Lower Strand during the 1970s enabled the creation of an informal grassed promenade overlooking the eastern portion of Town Beach.

The last two decades have seen increased interest in Hugh Town's historic fabric (for example, Madden 1996; Kirkham 2003) and practical conservation measures such as the English Heritage-funded Isles of Scilly Grant Scheme introduced in 1999 (Gill Arbery, pers comm). Enhanced recognition of the significance of the historic environment and improved protection for it is inherent within broader strategies towards environmental protection, maintaining and enhancing distinctiveness and sustainable development (for example, Council of the Isles of Scilly 2004; 2005; Buchanan and Context 4D 2006; Isles of Scilly AONB 2010). Research on the historic environment was part of the conceptualisation process for a major regeneration project in the Porthcressa area (Rachel Leung, pers comm).

There is substantial further potential for improving understanding of Hugh Town's development and history through documentary research (not least a continuing search for historic visual representations), fieldwork and detailed building recording. There is also much potential for encouraging public appreciation of the distinctiveness and significance of Hugh Town as an historic settlement through enhanced interpretation and presentation.

9.6.4 The Samson buildings

The post-medieval buildings on Samson are described in 'The Samson Buildings (2) – An assessment of the post-medieval buildings on Samson, Isles of Scilly' by Eric Berry (2006), from which the following summary is taken.

In 1652, Samson was described as having been formerly inhabited but the houses and enclosures had become ruined in the preceding years. Re-occupation had started by 1669. The inhabitants lived mainly by farming and fishing, supplemented by kelp burning and piloting. The population declined after 1833 and about 1855, under economic and social reforms introduced by Augustus Smith, the island was evacuated and an (unsuccessful) deer park created on North Hill.

The late seventeenth to mid-nineteenth Samson settlement as it survives today consists of the remains of 19 buildings, at least 10 to 12 houses and cottages, six farm buildings and a boat shed. These were identified with the letters A to U in the 1992 Survey, with K and M being redundant as no remains have been found to confirm historic map evidence.

One house and a boat shed are located on the Neck of Samson (see Mason 1984) and the rest on South Hill, mainly within the deer park wall. The largest group is towards the bottom of the north slope of the hill, in a sheltered hollow, below what appears to be the only spring on the island. Another group of buildings stands on the ridge, and there are further individual buildings and small groups to the west of these main groups.

In addition to these 19 buildings a further four were identified on a map of 1829-33 by the Driver Brothers. These are a row of three buildings on the south-west slope of South Hill and a gig shed on the south-east side of North Hill. Two gig sheds are also visible close to this latter location in a 1890s photograph by Frank Gibson. No evidence of these buildings has been found in recent surveys.

The dry-stone granite wall enclosing the deer park was partly formed from existing field boundaries and partly newly constructed of stone robbed from other boundary walls.

The dating of the houses has been established with some confidence and is from the early eighteenth century to c 1835. The dating of the non-domestic buildings is less certain, due to conflicting evidence, and they are identified only as being either side of the 1829-33 date of the Driver survey. There is evidence that after

human habitation of the island ceased c 1855, the buildings were adapted for agricultural use, which probably continued into the early twentieth century.

Scillonian houses of this period were generally single storey or low 2-storey. Some of the Samson houses have evidence of upper storeys, apparently reached by staircases; others probably had lofts with ladder access. Some upper storeys seem to have been used for the storage of spars. There are examples of both one-room plan cottages and two room plans (kitchen and parlour).

Roofs were generally thatched, rope thatch being the local tradition. Scantle slating was probably used when the upper storeys of some houses were raised, and in the building of the later houses.



Fig 9.6 Consolidation work being carried out on House N on Samson in July 2006 (photo:Jacqui Mulville)

External walls and chimneys were of granite rubble, with some dressed stones for quoins, jambs and lintels. The bedding mortar was ram, sometimes incorporating lime, and in some examples pointed with lime mortar. Some external walls were limewashed. Internally an earthen render finish was applied, with lime skim. In the lower status buildings the stone was simply limewashed. Dry-stone walling was first used for the deer park wall and subsequently in the adaptation of the buildings for agricultural use.

Upper floors were apparently of softwood, ground floors sanded earth with stone flags to thresholds and hearths. Both sash and casement windows are likely to have been used and window seats were a common feature. Internal partitions would have been of timber. Fireplaces had either granite or timber lintels and some had monolithic granite jambs. There is no evidence of ovens.

The non-domestic buildings were of similar construction but simpler. Some were of dry-stone walling. They were apparently all thatched. The majority were probably designed for general use, i.e. both animal occupation and storage.

All of the buildings have lost their roofs, timber floors, windows and doors and internal partitions. Of the surviving external walls and chimneys, some have been reduced to a few courses of masonry or piles of rubble. Others survive almost to full height. Deterioration continues, mainly due to the effects of weather and vegetation damage. They have all been identified as being at high risk in the English Heritage Buildings at Risk Register.

The need for consolidation and repair of the buildings was considered in the 1992 survey (Berry and Ratcliffe 1994) and, following further deterioration, was addressed in greater detail in the 2003 report (Berry 2003). Ten general structural problems were identified and remedial action proposed for each, building-by building repair proposals were described and an overall six-year conservation programme proposed, including recording and management.

Arising from this, the most urgent consolidation work was carried out in 2006-7. Associated archaeological recording was carried out by Cardiff University, including excavation in three of the buildings, and a detailed lichen survey done (Johns *et al* 2007; Johns *et al* forthcoming a).

The consolidation works were to parts of the buildings considered to be in danger of collapse or where human action might cause movement or dislodgement of the structure. The methods used were aimed at minimal intervention and stones were left undisturbed wherever possible. Techniques included re-bedding displaced stones in resin or lime mortar, lime mortar pointing and over-pointing with ram, reinforcing unstable walls with stainless steel cable and bars resin-bonded to the stones, and reinforcing defective timber lintels with stainless steel bars.

In 2008, English Heritage provided funding to the Isles of Scilly Wildlife Trust for further investigation of suitable methods for the repair and consolidation of the ruins, including trials of typical repair methods and preparation of a revised programme of future repairs. The 2006-7 work was reviewed, an updated condition survey carried out and a long-term repair philosophy proposed in response to a vision statement for Samson drawn up by IOSWT (Parkes Lees Architects Ltd 2009-10). This statement was centred on preserving the wildlife, landscape, historical and archaeological qualities of the uninhabited island. The results of further wildlife surveys became available, covering bats, storm petrels and plants.

In contrast with the 2006-7 works, more conventional masonry repair methods were proposed, using lime mortar and *ram*. A greater level of intervention was considered acceptable including reinstatement and a certain amount of rebuilding where this would enhance the longer term stability of the structure.

In 2009, the trial repairs were carried out by specialist conservation contractors, based on a detailed technical specification, and monitored by English Heritage and the project consultants. The following year, the results were reviewed in terms of the technical performance and conservation impact. The final reports recommended which methods should be used and proposed a 3-year programme for the works (Parkes Lees Architects Ltd 2009-10).

Further action is now dependent on the availability of funding. The urgent need for repairs is undiminished.

9.7 Designed landscapes

The only example of a planned ornamental landscape in Scilly is Tresco Abbey and its garden. Created largely out of former heathland by Augustus Smith in the mid-nineteenth century, the sub-tropical garden is a Grade 1 Registered Park and Garden (Tresco Abbey Gardens). As well as being of historic interest itself, the garden contains a range of earlier archaeological features - the twelfth century

remains of St Nicholas' Priory, a sixth century inscribed stone, a Roman altar, a Bronze Age holed stone, the brazier from St Agnes lighthouse, and various other historic objects. A figurehead museum, 'Valhalla', which is part of the National Maritime Museum, is also located within the Tresco Abbey Garden.

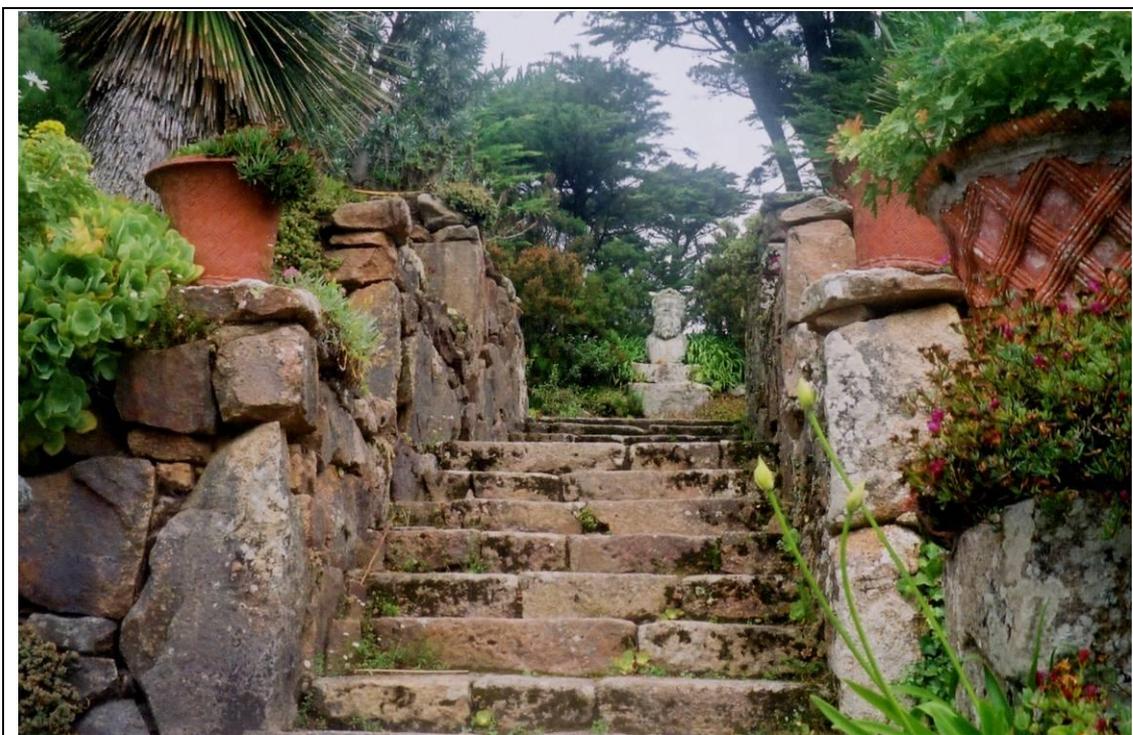


Fig 9.7 Wooden figurehead from the SS Thames, wrecked in 1841, at the top of the Neptune Steps in Tresco Abbey Gardens (photo: Cornwall Council)

9.8 Transport and communications

9.8.1 Shipping

All of the located wrecks in Scilly fall into this period. It is here that we see an enormous increase in maritime trade, the development of the British Navy, two industrial revolutions and the rise and fall of the British Empire. Perhaps, then, it is small wonder that we see a commensurate rise in the known maritime resource. There are 771 known shipping losses in Scilly in this period (Johns *et al* 2004), and although the majority of these have not been located, the list of wrecks which have been investigated is still impressive (Fig 9.8). Many more wrecks are known and visited by divers in Scilly, but most of these are iron steamers and only those where recorded recovery of material has taken place are included in the table. Many of these iron wrecks are visited regularly by the thriving dive charter businesses in Scilly and they now form an important part of the Scillonian tourist industry. This is also true of the more historic shipwrecks, with RIB (rigid inflatable boat) tours of the wrecks and illustrated slide shows being held weekly in the tourist season.

Shipwrecks located and investigated in Scilly				
Ship	Date lost	Details	Location	Publications
Unknown	1595-1600	Protected wreck site Unknown vessel, wrought iron guns, lead ingots and bronze bell fragments.	Bartholomew Ledge	(Johns <i>et al</i> 2004) (Craddock & Hook 1987)
Black Rock	?C16 th	Cannon site (c 14 small cast iron guns) Excavated and artefacts sold in the 1990s (mostly coins)	Black Rock	(Johns <i>et al</i> 2004)

Shipwrecks located and investigated in Scilly				
Ship	Date lost	Details	Location	Publications
<i>Prinses Maria</i>	1686	Dutch East Indiaman The king sent the royal yacht to recover specie (1696). Excavated 1976-7 (Rex Cowan) – large areas of intact timber were found. Artefacts were recovered. Some subsequent commercial salvage work.	Crebinnicks	(Johns <i>et al</i> 2004)
<i>Association</i>	1707	British Warship (2 nd rate) 96 guns Contemporary salvage including the Herbert expedition (1710) recovered iron and brass guns, several chests of money and reported the hull intact. Divers working on construction of Bishops Rock lighthouse saw guns and recovered shot (1847). Relocated in 1967 and subject of much <i>ad hoc</i> salvage. Contracts for salvage issued by MoD in 1967 to several salvage operators. Quantities of artefacts were recovered and many were sold at auction in Penzance and London (predominantly coins).	Gilstone	(Lotbiniere 1984) (Mace nd) (Rogers nd) (Morris nd) (Morris 1984 a) (Morris 1984 b) (Morris 1984 c) (Green 1984) (Larn 1985)
<i>Eagle</i>	1707	Protected wreck site British warship (3 rd rate) 70 guns Recovered artefacts sold at auction	Tearing Ledge	(Larn 1984)
<i>Firebrand</i>	1707	British fireship - 8 guns Salvage by the Herbert expedition (1710) Excavated 1976-7 by Roland Morris and others. Bell, nocturnal and carvings recovered Surveyed 2006-9 by CISMAS	Smith Sound	(Camidge 2011) (Larn 2006) (Morris 1982)
Unknown	?C17 th – 18 th	Seven cast iron guns and an anchor. The guns are lying close together, parallel, muzzle-to-breach suggesting they were possibly cargo. Found (2002) by Todd Stevens. Some artefacts were recovered	Innisidgen	(Wessex Archaeology 2005)
Unknown	?C17 th – 18 th	About 20 cast iron guns and 3 anchors. Possibly the site found by Morris and identified (by him) as the <i>Romney</i> (late 70s – early 80s). Site sketch by IMAG Wreck adopted (NAS) by IMAG	West of Zantman's Rock on the Crim	(Morris 1979) TS blog site NAS adopt a wreck
Unknown	Early ?C18 th	Timbers, planking and timber sheathing Excavated (2005->) by Todd Stevens Some finds recovered suggesting early 18 th C date. TS thinks this may be the wreck of the <i>John</i> (1645)	Pendratheren, St Mary's	(Wessex Archaeology 2005) (Stevens 2011)
<i>Hollandia</i>	1743	Dutch East Indiaman Salvage by Letheridge, silver (1743) Excavated 1971-77 (Rex Cowan) 50,000 silver coins and over 3000 other artefacts were recovered – some were sold but the remainder (c 90%) was acquired by the Rijksmuseum.	Gunner Rock	(Cowan <i>et al</i> 1975) (Larn 1985) (Marsden 1978) (Cowan 1982) (Engelsman 1982) (Gawronski <i>et al</i> 1992)

Shipwrecks located and investigated in Scilly				
Ship	Date lost	Details	Location	Publications
<i>Nancy</i>	1784	Two-masted packet 10 guns Salvage work by John Braithwaite in 1784 Investigated by IMAG, artefacts recovered Adopted by Stevens and Cumming under the NAS adopt a wreck scheme	Rosevear	(Stevens & Cumming 2008)
<i>Zeelille</i>	1795	Dutch East Indiaman 26 guns Excavated 1992-7 (Hiron & Larn) Pottery and iron gun recovered	Crebinnicks	(Johns <i>et al</i> 2004)
<i>Colossus</i>	1798	Protected wreck site British warship (3 rd rate) 74 guns Salvage including Tonkin & Braithwaite (1803), John Dean (1883) Relocated by Roland Morris (1974) when a large number of pot sherds were recovered for the British Museum. Guns and anchors (whereabouts unknown) were also recovered. Stern section located 2001, stern quarter carving recovered (now displayed on Tresco)	Southward Wells	(Camidge 2001) (Camidge 2002) (Camidge <i>et al</i> 2005) (Camidge 2005) (Camidge 2008) (Camidge 2009) (Camidge 2010) (Morris 1979) (Morris 1984 a) (Morris 1984 b) (Morris 1984 c) (Smallwood & Woodford 2003) (Stevens 2007) (Wessex Archaeology 2003) (Wessex Archaeology 2007)
<i>Hope</i>	1830	Brig Salvage by John Dean (1832)	North of St Martins	(Johns <i>et al</i> 2004)
<i>Thames</i>	1841	Sailing steamer (500 tons) Salvage by Dean six weeks after the wreck	Jacky's Rock	(Johns <i>et al</i> 2004)
<i>Douro</i>	1843	Schooner (200 tons) Cargo includes copper alloy manillas (a form of west African currency) and glass beads. This type of manilla was manufactured in Birmingham in the 19 th C. Found by divers in 1970. Manillas and beads are recovered from time to time and are occasionally offered for sale on e bay.	Round Rock	(Craddock & Hook 1987)
Unknown	Mid C19 th	Protected wreck site (Wheels wreck) Discovered in 2005 by IMAG divers, some survey and recovery of artefacts. Little remains of the vessel but the cargo of 'mining machinery' (mainly iron pumping equipment) probably from a Cornish foundry (date post 1850)	South of Little Ganinick	(Wessex Archaeology, 2006a)
<i>Zelda</i>	1874	Iron steamer (1300 tons) Salvage Western Marine Salvage (c 1900)	Bryher	(Johns <i>et al</i> 2004)
<i>Schiller</i>	1875	Iron steamship, passenger liner 3421 tons. Contemporary salvage recovered gold coin. Further salvage work (Larn & McBride) in the last ten years. Finds by others reported on various websites	Retarrier Ledges	(Johns <i>et al</i> 2004)

Fig 9.8 showing known wrecks in Scilly which have been the subject of some kind of investigation and/or salvage

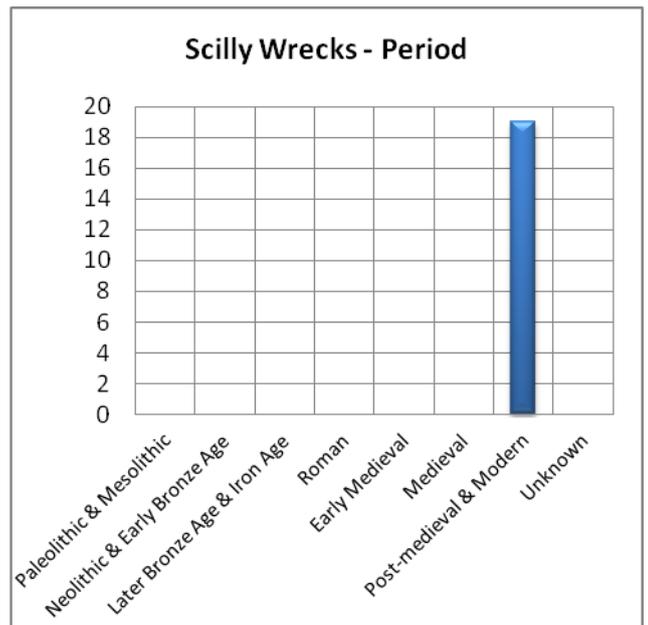
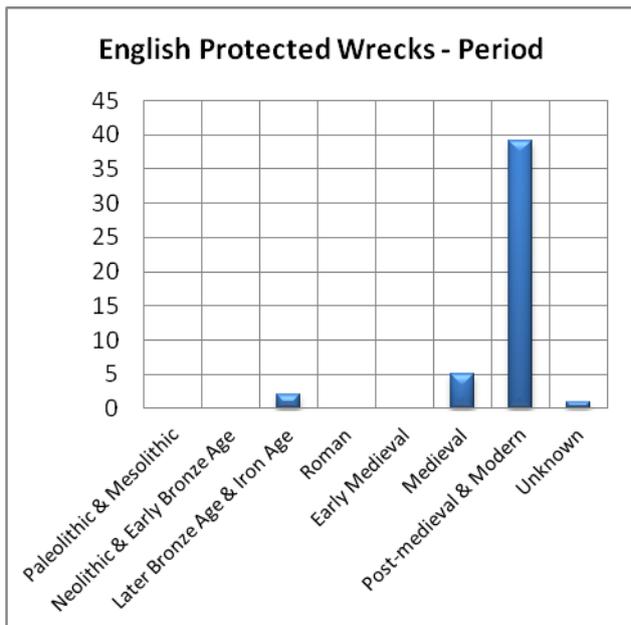
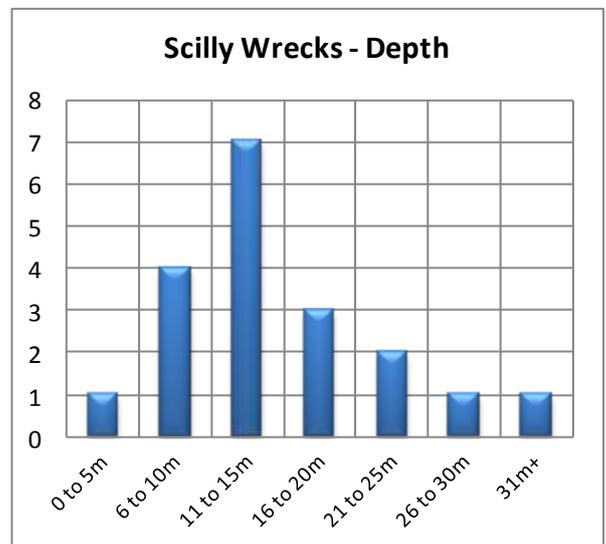
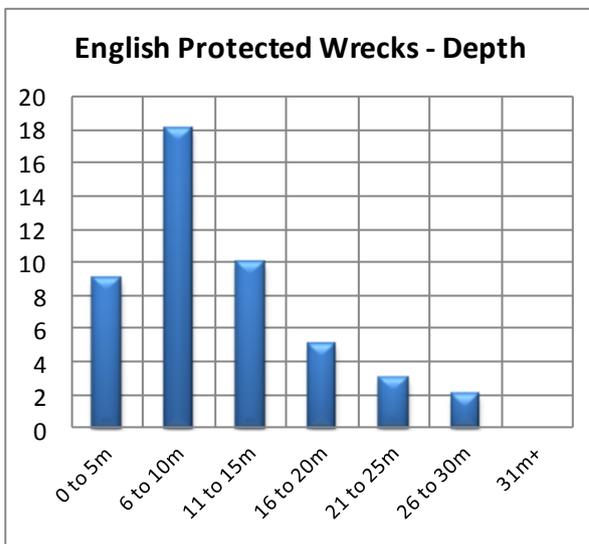
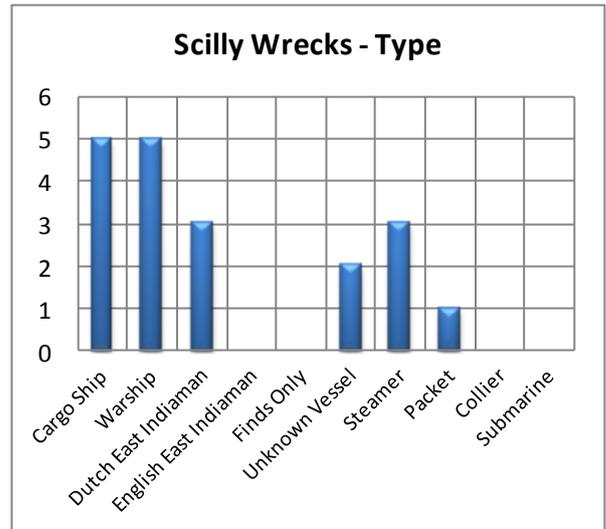
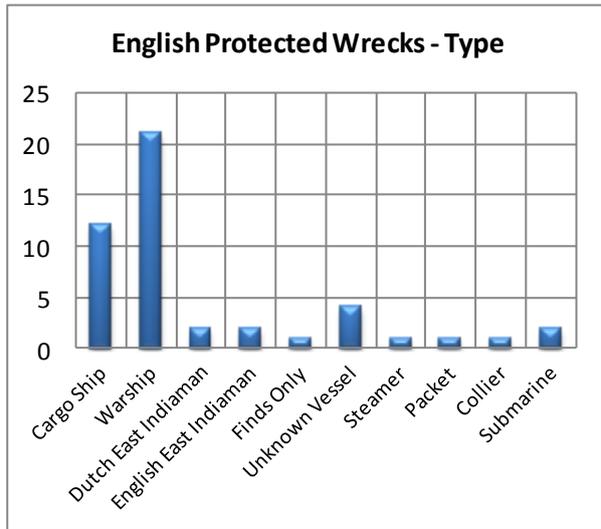


Fig 9.9 Comparison of English protected wreck sites with the investigated Scilly wrecks by vessel type, depth and period

Some of the shipwrecks in Scilly have been the subject of high profile salvage work. In some cases this has been focussed on the recovery of valuable artefacts. Wrecks which fall into this category are *Prinses Maria* (1686), *HMS Association* (1707), *HMS Firebrand* (1707), *Hollandia* (1743), *Zeelilie* (1795) and *HMS Colossus* (1798). In some cases (*Firebrand*, *Hollandia* and *Colossus*) there has been both salvage work and archaeological investigation, but the *Association*, *Prinses Maria*, and *Zeelilie* have had extensive salvage work undertaken, with recovery and sale of many artefacts but little or no publication. In the case of the *Association*, many different individuals have been involved in the recovery and sale of coin and other artefacts with virtually no account available of what has been 'recovered' or of the remaining fabric of the vessel. In the case of the *Association* there are even reports of explosives being used on the wreck (Morris 1979). Sometimes the exploitation takes place with almost no knowledge even on the part of the tightly-knit Scillonian community. The Black Rock site, where no one knew that material had been recovered from the wreck until after it had been sold at auction, is a good example of this (Johns *et al* 2004).

The Scilly wrecks are comparable with the English protected wreck sites in terms of vessel type discovered (Fig 9.9). Both groups have warships and cargo vessels well represented. The Scilly group does not have as many diverse vessel types represented – but this is to be expected as it is a smaller number of vessels ('English protected wrecks' consists of 47 sites, while 'Scilly investigated wrecks' consists of only 19 wrecks). The smaller vessels in particular are under-represented in the Scilly group.

It is interesting to compare the depth of the Scilly sites with those of the English protected sites (Fig 9.9). The mean English site depth is 11.2m while the mean for the Scilly wrecks is 15.7m. What is not clear is whether this is due to deeper conditions around Scilly, or to deeper diving activity in Scilly leading to more frequent discovery of deeper wrecks.

When we compare the period of English protected sites with those discovered in Scilly (Fig 9.9) it is clear that in both cases the majority of sites fall within the post-medieval and modern category. There are a few earlier sites in the English group, but again this is probably due mainly to the larger sample. This situation probably reflects the relative amounts of maritime activity but poorer survival of the older wrecks may play a part. Another probable factor is the nature of the older vessels: smaller, less substantial and often without large iron objects such as guns and anchors – these factors will all mitigate against discovery.

9.8.2 Navigation and pilotage

Situated at the mouth of the English Channel, the Isles of Scilly constituted a considerable hazard to shipping, especially to any vessels unsure of their exact position. Many of the shipping losses in Scilly can be attributed to this cause.

One of the most notorious shipping disasters in Scilly was the loss of four ships from Sir Cloudesley Shovell's fleet which ran into the Western Rocks off Scilly on the night of 22 October 1707. Three ships, *Eagle*, *Romney* and Sir Cloudesley's flagship *Association*, were lost with only a single survivor between them. The fireship *Phoenix* struck a rock and eventually grounded between Samson and Bryher. The fireship *Firebrand* also struck the rocks but managed to get off again. Leaking badly, she made for the beacon of St Agnes lighthouse and foundered in Smith Sound close. Over 1500 men perished in this incident, making it one of the worst disasters in British naval history. Eventually, the disaster led to the 1714 Longitude Act, offering large prizes for a practical method of fixing longitude at sea (Larn 1971; 2006; Roger, 2004).

Between 1720 and 1870 Scilly (especially St Agnes and St Martin's) was home to many pilots, who ensured that ships had a safe passage through the Islands and beyond. By the beginning of the nineteenth century piloting was restricted to fewer individuals, but in 1850 there were still a good fifteen pilot boats – cutters and gigs (Johns *et al* 2004).

Since 1990 the Scilly has been the home of the World Gig Racing Championships. The gig originated in the eighteenth century as a light-weight clinker built boat with six oars and a sail. The type is recorded as a ship's boat on board British warships from about 1760 (Lavery, 1987). The specific type used in the Scilly race is also known as the Cornish Pilot Gig, the name gives a clue as to one of its uses. In the eighteenth century pilots were used to guide ships into ports and along difficult coastlines. One point for collecting channel pilots was Scilly. It is often said that pilots competed for the job; the fastest boat would reach the vessel first and secure the job. The pilot gigs used in the World championships are said to have their origins in gigs built by the Peters family of St Mawes at the end of the eighteenth century (Gillis 1969).

The gig races are now held using boats propelled by six oars, but originally the gigs used sails as well. '*All the gigs were fitted to sail with a dipping forelug and a standing lug mizen*' (Gillis 1956). The gigs were apparently good sea boats and were used for many different tasks, not always lawful. '*The gigs were wonderful sea-boats, and often made trips from the Isles of Scilly to France. The Hope was the last of the Isles of Scilly gigs to go to France for a smuggled cargo, but I gather she was sailed most of the way. The Hope was built in the Isles of Scilly by a boat builder named Samuel Tiddy, who built the Sultan, the Leo and the Gipsy. Tiddy had served his time in the Peter's Yard at St Mawes*' (Gillis 1956).

Piloting in Scilly declined with the introduction of steamships (Johns *et al* 2004), and the hazards of putting a pilot aboard a large iron vessel from a small wooden boat are illustrated by the St Ives gig *Guide* which was lost putting a pilot aboard *SS Pentreath* when the *Pentreath* rolled onto the *Guide*. The pilot gigs ended their working lives in the early part of last century. '*The last time a six-oared gig was used to put a pilot aboard a vessel was 22 December 1938. The vessel was called Foremost and the pilot was Jack Hicks of St Agnes*' (Gillis 1969).

9.8.3 Packets and passenger boats

The need for regular communications with the mainland grew during the eighteenth century as the maritime importance of St Mary's developed. The link was provided by open boats at four to six week intervals in summer and longer in winter, sometimes it was worse and Borlase in 1752 mentioned '*seventeen weeks without any provisions whatsoever or intelligence*'. The *Prudence and Jane*, carrying essential goods from Penzance to Scilly, was driven by storms to Cherbourg in 1793 (Gill 1975, 145; Chudleigh 1992, 5).

In 1804 a mail service was established with a voluntary payment of 2d a letter, the contract being given to James Tregarthen master of the 30-ton *Hope*, at the recommendation of the garrison commander. From 1827 the mail was carried by the *Cherub*, commanded by Captain John Tregarthen, and after she was lost in 1837, by the *Lord Wellington*, on which Augustus Smith had earlier made his first visit to the islands in 1834. The first *Lyonesse*, a sailing cutter started service in 1845, commanded by Captain Frank Tregarthen, who later took command of the *Ariadne*, a sloop provided by the islanders as a connecting link between Scilly and Penzance. For about two years the *Ariadne* and *Lyonesse* ran in opposition, but eventually the former secured the mail contract worth £300 per annum, running three days a week. On a good day a cutter could make the journey in about six hours, with a light wind it could take all day (Chudleigh 1992, 5).

Coastal steamers on the Cork-London run had been passing Scilly since 1823 and excursion steamers calling since 1831. The West Cornwall Steamship Company was formed in 1857, using the steamer *Scotia* for mails passengers and cargo until their new ship *Little Western*, built in Glasgow, came into service two years later. She was 115ft 7in long with an 18ft beam and gross tonnage of 148 tons. In October 1872 she went to the aid of a disabled brigantine but was overcome by a heavy sea and sank on the Southward Well rocks off Samson (Gill 1975, 146; Chudleigh 1992, 5).

The West Cornwall group amalgamated with the Isles of Scilly Steam Navigation Co. and ran the paddle steamer *Earl of Arran*, which was wrecked on Nornour in 1872. She was succeeded by the *Guide*, the *Queen of the Bay* and the *Lady of the Isles*. The latter was built by Harvey's of Hayle in 1875 and was in service until 1904, when she hit a rock and sank off Lamorna during an excursion trip. Salvaged and repaired she went on to carry out a relief service when the first *Scillonian* (later known as *Scillonian 1*) was away for refit and also helped during busy flower seasons (Chudleigh 1992, 8). The second *Lyonesse* was also built at Hayle for John Banfield in 1888. She towed the sailing ship *Horsa*, off the rocks of St Martin's in 1893, and helped the *Queen Mab* (not listed by the NMR or UKHO), which struck the Spanish ledges. She was sold in 1918 (Chudleigh 1992, 8).

During WWI a succession of trawlers, drifters and a coaster were provided by the Ministry of Shipping to carry passengers and essential supplies to the Islands. After the end of the war the islanders had to set up their own transport arrangements. The first boat was the *Lapwing*, and then the *Argus*, a former fishery protection vessel, renamed the *Peninnis*. The Isles of Scilly Steamship Company Ltd was formed in March 1920. The first *Scillonian* was built by the Ailsa Shipbuilding Company of Troon in Scotland, she was steam driven, 177ft in length, with a beam of 28ft 6in and a draft of 10ft 6in. With a speed of 12½ knots she could carry 390 passengers and 165 tons of cargo, making her first regular trip on 2 February 1926. She 'did yeoman service' until 1956', amongst much grounding, that on Wingletang Ledges in September 1951 being the most famous. In 1946/7 a new Steamship Company ship, a second *Lady of the Isles*, was built at Poole. *Scillonian II* was launched in 1955; a second ship *Queen of the Isles* came into service in 1965. *Scillonian III*, built at Appledore, was launched in 1977. A Norwegian coaster *Gry Maritha* was bought in 1989 for all-year freight carrying and the *Lyonesse Lady*, a cargo ship for general inter-island service was introduced in 1991 (Chudleigh 1992, 12-102).

9.8.4 Maritime infrastructure

Quays

First built in 1601, Hugh Town quay is physically and functionally separate from the town but of fundamental importance to it. The structure itself records many of the town's and islands' significant milestones: initial construction accompanied the Elizabethan fortification of the Garrison and created the sheltered landing place around which the settlement formed; then refurbishment in the 1740s was part of a major expansion of the Garrison defences and military presence; the new, much larger deepwater quay was built in the late 1830s testified to Augustus Smith's aspirations for the prosperity of the islands (the curious dressed granite piers at the entrance reputed to have been intended to emphasise his proprietorial control over access); extension in the late nineteenth century was required to serve the expanding flower trade and widening in the late twentieth century to facilitate modern handling methods. The quay structure itself holds evidence of its original construction and successive phases of repair. A number of historic cannon reputed to have come from the wreck of the eighteenth century warship HMS *Colossus*, have been set into the Augustus Smith quay as mooring posts. Some of these were moved in 1994 during operations to widen the quay but others remain *in situ* (Kirkham 2003).

The following quays, slipways and piers are recorded in the Cornwall and Scilly HER: Bryher – Great Porth, Kitchen Porth; St Mary's - Old Quay (Old Town), slipway Old Town, Old Quay (Hugh Town), Toll's Island, two quays on Newford Island, Point of Fields, Pendrathen Quay, a pier at Porth Hellick, slipways at Innisidgen Hill, Pendrathen, and Porthcressa, New Quay; St Agnes - a quay and slipway at Periglis, Porth Conger, Uncle Tom's Quay, Hole of Cove Vean; St Martin's – The Porth, Old Quay, New Quay; Tresco – slipway at Crow Point, quays at Carn Near, Old Grimsby, New Grimsby; other islands – two at East Porth, Tean, St Helen's (Pest House quay), Arthur Quay.

Lighthouses, lightships and navigation aids

One of the earliest measures used to safeguard shipping was the use of lights and markers to help vessels determine their whereabouts, and to warn of hazards. The 'lighthouse chapel' on St Martin's Head continued in use through the medieval period and is shown on Captain Greenville Collins' navigation chart of the Isles of Scilly surveyed between 1691 and 1698 (UKHO B888).

Date	Location	Type
1680	St Agnes	A coal-fired lighthouse
1687	St Martins	Daymark, masonry tower
1802	St Agnes	The coal-fired lighthouse was converted to oil lamps
1849	Bishop Rock	First iron lighthouse, 120 feet high. Washed away in 1850 before it was commissioned
1859	Bishop Rock	Second lighthouse, constructed in stone
1887	Bishop Rock	Third lighthouse, constructed by encasing the second lighthouse in additional stonework. 167 feet high. Still in use today.
1887	Round Island	Lighthouse
1911	Peninnis Head	Lighthouse, iron.
1911	St Agnes	Lighthouse decommissioned.
?	St Mary's	Mount Flagon sea mark
2002	St Agnes	Tins Walbert daymark

Fig 9.10 Lighthouses and daymarks in Scilly (cf Bowley 1968)

Trinity House's involvement in Scilly began as early as 1680 when they built their second lighthouse on St Agnes (the first was at Lowestoft), superseded in 1911 by one on Peninnis Head. To aid navigation a day mark was built in 1687 on St Martin's by Thomas Ekins, the first steward of the Godolphins to reside on the Islands. The inscribed date stone has been altered to 1637 and should read 1687 (Ratcliffe and Johns 2003, 34; Greeves 2007/8, 164-7).

The Bishop Rock lighthouse is of nineteenth century date and still used. On the rocky island of Rosevear, one of the Western Rocks, are the ruins of four rectangular drystone buildings which are the remains of a blacksmith's workshop and the quarters of the men who built the lighthouse (1847-50 and 1847). There is no evidence to support the theory that these may originally have been built by Edmund Herbert's expedition to salvage the *Association* in c 1710. The most prominent building survives up to roof height and incorporates a large natural outcrop at its west end and as part of its base. There is also an anvil made from a naturally hollowed boulder, a rectangular platform made of large blocks and the remains of stone-splitting operations (Ratcliffe 1989, 66). There has been a lightship to mark the Seven Stones reef since 1841. Round Island Lighthouse was erected in 1887, around the same time as Bishop Rock was being strengthened.

There is a modern sea mark at Mount Flagon, St Mary's, and the standing stone beside it may have been used as an earlier mark. The Tins Walbert navigation transit daymark on the north western extremity of St Agnes was completed on 1 May 2002.

A detailed history of the Bishop Rock has been published recently (Stanbrook 2008) but there is considerable potential for further research into the history of other lighthouses.

Isolation hospital

The building on St Helen's known as the 'Pest House' is an isolation hospital built in 1764 to house plague cases from visiting ships calling at Old Grimsby and St Helen's Pool (after a 1754 Act of Parliament decreed that any plague-ridden ship north of Cape Finisterre heading for England should anchor off this island). The building has recently

been repaired and stabilised with the benefit of EH funding through the IOS Grant scheme administered by CIOS. Associated with the Pest House are a well and a slipway and a field system along the islands' south-eastern coastal margin bounded by post-medieval banks (Ratcliffe 1989, 66).

Signal stations

The signal station on Chapel Down, St Martin's was one of a series set up around the coast of Britain during the Napoleonic Wars to send information and orders to men-of-war waiting offshore (using a flag, pendant and four canvas balls). It was in use from 1810 until replaced by the semaphore tower on St Mary's around 1814. A two-phased enclosure surrounds the main building, which accommodated four naval operators. Heavily robbed of stone, it still retains its central chimney breast. Several ancillary buildings are incorporated in the enclosure wall and an animal pen built against its east side. The signal post (an old ship's mast) probably stood to the north-east near the base of a more recent lookout. A small field to the west may also be associated (Ratcliffe and Johns 2003, 34-5).

One of the sixteenth or seventeenth century windmills on the Garrison was used in the mid-nineteenth century by the coastguard service and then, in 1869, was acquired by the Shipping Gazette before being taken over in 1871 by Lloyds, who bought it in 1882.

Telegraph Tower, a circular granite building, was erected on the highest point of the Islands as a gun and semaphore tower was built in 1814 and only remained open for two years. Later adapted as a signal station, it was here, in 1898, that Guglielmo Marconi heard wireless signals transmitted from Porthcurno (thirty miles away in West Cornwall). The four-storeyed building, 12m high, serves as the Coastguard headquarters and weather reporting station.

Gig sheds

Gig sheds (boathouses) remain a characteristic feature of the shoreline on some of the inhabited islands. These are long narrow rectangular buildings, c10m by 3m internally, open at one end and constructed of stone-face walling. Situated just above the beaches and originally thatched, these buildings once housed pilot gigs similar to those used for racing in Scilly today (see above section 9.8.1). Eleven boathouses are recorded in the Cornwall and Isles of Scilly HER, six destroyed or covered by sand, five definitely extant. Gig sheds are a distinctive component of the historic landscape and providing a visible and tangible link to the history of piloting in the Islands.

Lifeboats

The lifeboat station on St Mary's was established in 1837, the first lifeboat arriving in 1840. Her only recorded service was on January 4 1841, when she went to the aid of the steam packet *Thames*, driven ashore on the Western Rocks. There was a lapse in the service around 1855 and it was re-established in 1874 following the disasters of the *Delaware* and the *Minnehaha*. The new lifeboat, the *Henry Dundas* was a 37ft, 12-oared pulling and sailing lifeboat. She first saw service when the *Schiller* was wrecked on the Retarrier Ledges on 7 May of the following year. A back-up lifeboat station was established on St Agnes in 1890 and was operational until 1920. The Carn Thomas lifeboat station was built in c1899 to accommodate a new Watson-type lifeboat (Bird 1991, 66-79, 202-4).

Troy Town Maze

Troy Town maze is situated close to the cliff edge on the west side of Castella Down, St Agnes. It is circular in plan, 5.6m in diameter and formed of beach pebbles. It is said to have been laid out in 1729 by a bored lighthouse keeper or his son (Nance 1924), of St Merryn, Cornwall, but may well be earlier in date and has been periodically rebuilt, latterly by Eddie Pryn in the 1980s and with work by Ben Hicks in 2011. This maze is apparently unique in Britain, resembling in pattern and construction the stone mazes of Scandinavia (Mathews 1922).

9.8.5 Telegraph and telephones

The 1868 the Scilly Isles Cable Company attempted to lay submarine telegraph cable from Land's End, but the cable was five miles too short. The cable was relaid the following year with an office in Scaden's post office. In 1875 it was moved to John Gibson's general store in Silver Street. The cable and company failed in 1877-8 and was turned over to the Post Office who laid anew cable from Porthcurno in 1886, and by 1883 inter-island cables were laid, originally for the coastguard but in 1894 the off island post offices were connected for public use. In 1938 telephone connection was established through short-wave radio. An automatic exchange on Tresco also served Bryher and St Martin's from 1957 and in May 1968 all the islands went automatic on Subscriber Trunk Dialling with 48 channels on the radio link to the mainland (Gill 1975, 154-5).

9.8.6 Air travel

On 15 September 1937 an air service was started by Captain Olley's Channel Air Ferries with the golf course as the St Mary's terminal. St Just was the mainland terminal with a bus link to Penzance. The service was stopped by the outbreak of World War Two and the RAF took over the airfield, although a mail service continued (Gill 1975, 151).

When civilian airlines were nationalise after the war British European Airways (BEA) took over the service to the Islands in 1947 and facilities were improved In 1959, 29,100 passengers were carried. BEA introduced helicopters in May 1964, and the heliport at Penzance was built in September of that year. By 1973 the annual number of passengers was up to 68,248 and work began in June 1974 on the new airport on Salakee Down, St Mary's.

Aircraft crash sites at sea

Thousands of aircraft are likely to have been lost in UK territorial and near-territorial waters during the twentieth century. A high proportion of these losses are likely to be combat losses or accidental losses of military aircraft that occurred during WWII. The potential resource is therefore very large (Wessex Archaeology 2008b).

The number of known aircraft crash sites on the seabed as recorded by the National Monuments Record (NMR) and the HER is relatively small. The known resource is therefore relatively small. Notwithstanding issues concerning survival, the potential therefore exists for the presence of a very large number of currently unknown crash sites on the seabed and, to some extent, in the intertidal zone. Recent discoveries of previously unknown aircraft crash sites in licenced marine aggregate dredging areas suggests that there is a need for urgent national and local record enhancement in areas of seabed likely to be impacted by human activities (*ibid*). NMR records for crash sites of identified aircraft around Scilly are shown below in Figure 9.11.

NMR no	Name	Date	Aircraft type	Nation	Source	Easting	Northing
1329887	SUNDERLAND U N9045	1939	Flying Boat	British	NMR	89320	11480
1329127	SPITFIRE MK I N3101	1941	Fighter Aircraft	British	NMR	89320	11480
1357319	WELLINGTON MK IC W5631	1941	Bomber Aircraft	British	NMR	89320	11480
1318392	WELLINGTON IC DV661	1942	Bomber Aircraft	British	NMR	89320	11480
1323502	HURRICANE MK I R4228	1942	Fighter Aircraft	British	NMR	83910	6280
1329565	TIGER MOTH MK II N6598	1942	Trainer Aircraft	British	NMR	90180	10840
1352701	BRISTOL BEAUFIGHTER MK VI T5156	1942	Fighter Aircraft	British	NMR	89320	11480
1354000	WELLINGTON MK IC W573	1942	Bomber Aircraft	British	NMR	89320	11480
1354579	WHITLEY MK VII Z9524	1942	Bomber Aircraft	British	NMR	89320	11480

NMR no	Name	Date	Aircraft type	Nation	Source	Easting	Northing
1353071	WALRUS MK I W3026	1943	Flying Boat	British	NMR	89320	11480
1353996	WELLINGTON MK IC W5714	1943	Bomber Aircraft	British	NMR	89320	11480
1355229	WELLINGTON MK X HZ957	1943	Bomber Aircraft	British	NMR	89320	11480
1356762	LANCASTER MK III ED717	1943	Bomber Aircraft	British	NMR	89320	11480
1317923	SUNDERLAND MK III DD836	1944	Flying Boat	British	NMR	90180	10840
1343345	HURRICANE MK IIB BW949	1944	Fighter Aircraft	British	NMR	90180	10840
1356384	HALIFAX MK II JD176	1944	Bomber Aircraft	British	NMR	89320	11480
1340976	SUNDERLAND MK III ML770	1945	Reconnaissance Aircraft	British	NMR	89320	11480

Fig 9.11 NMR records for crash sites of identified aircraft around Scilly

9.9 Technology and production

9.9.1 Stonecutting

Evidence for stonecutting over four centuries (c 1550-1950) survives well on Scilly, although there has not been a dedicated study or detailed report on the history of stonecutting on the Islands (Greeves 2010, 151-3).

For hundreds of years most stone used for buildings was cut or drilled from natural outcrops of rock (called 'moorstones' in Cornwall) and then dressed for use as quoin stones, window frames, arches, gateposts etc. Earlier stonecutting was done by cutting slots in the stone with chisels and splitting it using iron wedges – the 'wedge and groove' technique – evidence of the use of this method can be seen on the Garrison and the roofing stones of Innisidgen entrance grave on St Mary's (*ibid*).

The 'tare (or plug) and feather' method of stone splitting was introduced in Cornwall from America in about 1800. The technique of splitting granite using plug-and-feather is described by Peter Herring in Vol 2 of the Bodmin Moor Archaeological Survey:

'A line of holes 0.075-0.10m deep and 0.10 to 0.15 apart was drilled along the intended cleavage line by giving hand-held stone borers or chisels part-turns between blows... Holes drilled in the first half of the 19th century tended to have larger diameters (0.028 – 0.035m) than more recent ones (0.015m)... Iron 'plugs', (short chisels), were placed between pairs of iron feathers reaching the bottoms of the holes. The plugs were struck in turn by a sledgehammer (thus splitting the stone)' (Herring 2008, 87-88).

Two main areas of stone cutting were recorded on Samson Flats during the CISMAS survey where large granite boulders which have been split using drilled holes with plug-and-feather splitting (Camidge *et al* 2010).

Quarries on the west side of Buzza Hill mostly date to the later nineteenth or twentieth centuries (Greeves 2010, 151). Robert Maybee records that stone was cut from Carn Thomas to build the new pier on St Mar's in 1889 (Greeves 2010, 151-3).

9.9.2 Limeburning

Demand for lime has come from two principal sources. Firstly, the development of agriculture in the nineteenth and nineteenth centuries and the need to neutralise acid soils led to an increasing demand for lime. In particular a shortage of grain in the Napoleonic Wars encouraged landowners to cultivate marginal areas of land and many limekilns were built as a result. Secondly, lime was used in the building industry for creating mortars and for limewash finishes. Lime kilns were usually built near to

harbours where limestone and coal to fuel the kilns could easily be brought by sea. By the mid-nineteenth century there was a constant trade was carried on around the south-western coasts by small ships bringing limestone from the quarries near Plymouth or coal from South Wales as ballast (Johns et al 2004, 109).

There may have been a lime kiln in Hugh Town since an early date as lime was being produced on site in 1593 for Star Castle (Brodie 2010, 35). The 1862 plan of Hugh Town by Capt Williams shows two limekilns, one on Rat Island, the other at the end of Silver Street, at the back of Porthcressa beach. There are no surviving above ground remain of these limekilns.

9.9.3 Kelp industry

The history of the kelp industry in Scilly has been summarised by Luke Over (1987). The copious quantities of kelp available on Scilly gave rise to the kelp burning industry, which was introduced to the islands in 1684 by the Nance family from Falmouth who settled on the small island of Tean for several generations. Kelp burning formed an important part of Scilly's economy for some 150 years. The seaweed was collected, dried and burnt in small stone-lined pits close to the waters edge. The obnoxious smelling process produced soda ash, which was shipped to Bristol and Gloucester to be used in the manufacture of glass, soap and bleach. After the Napoleonic Wars, increased foreign supplies of soda ash and new chemical processes for the manufacture of alkali led to the decline of Scilly's industry, which ceased in 1835. Although a hundred fires are said to have burnt at one time, the remains of only a dozen kelp pits are now visible although others become intermittently exposed in section in eroding dune faces e.g. south of Lower Town, St Martin's (Over 1987; Ratcliffe and Johns 2003, 20-21).

9.9.4 Shipbuilding

There is good summary of the history of shipbuilding in Scilly by Davies (1988) and the industry features in several accounts of the Islands (e.g. Gill 1975). Small sailing ships were built in Scilly for about a century starting in the late eighteenth century. These were all wooden sailing ships, and relatively small vessels. The largest ever built in Scilly was the *John Banfield*, a barque of 528 tons built by T Edwards in 1859.

The earliest record of shipbuilding in Scilly is contained in Robert Heath's 'Account of the Islands', written about 1750 where he records only one boat builder in Scilly. The subsequent records of boatbuilding on the islands are due mainly to the Merchant Shipping Act of 1786 which required all vessels of over 15 tons to be registered (Davies 1988). Shipbuilding on Scilly seems to have been largely confined to the island of St Mary's, with only a single vessel (*Antelope*, 1837) built on Bryher. The lack of shipbuilding materials on the islands (also attested in Heath's account) would have necessitated timber and other materials being shipped to Scilly from the mainland or further afield.

One early vessel built in Scilly was the *Grace*, built in 1779. In 1780 she was registered as a privateer, working in company with the *Dolphin* of Penzance. Between them they captured ten Dutch ships with 'valuable cargo' (1780-91) (Davies 1988). Shipbuilders would also have undertaken repair work, especially when vessels arrived damaged in Scilly. For example, in 1805 the brig *Henry* (for London with wheat), *Better Luck Still* (for Newport), *Mary* (for Plymouth with flour and beef), *Martha* (cargo of timber) and *Governor Milne* (cargo of sugar) were all 'hauled up on the beach for large repairs' in Scilly.

The first vessel of over 100 tons built in Scilly was the *Union*, a 137 ton brig built by B Banfield in 1804. Smaller vessels were also constructed; in 1815 'at least' five open boats were built for fishing. Vessels built in Scilly were mainly registered in Scilly, but some were also built for mainland owners – only seven Scilly-built ships were sold to mainland owners in the nineteenth century.



Fig 9.12 Shipbuilding (the David Auterson) on Porthcressa, St Mary's c1870 (©Gibson Collection)

Hugh Town was dominated by the shipbuilding industry for most of the nineteenth century 'with stacked timber, sawpits, stores, sheds, offices, etc. spread inland from the beaches'. The 1840s was the heyday of shipbuilding in the islands with four yards on Porthcressa alone. (Davies 1988). One of the largest yards was that of William Mumford who operated from 1821 to 1868 on a site later occupied by Holgate's Hotel on the Strand. Timber used for the shipbuilding included English oak from the New Forest, red and pitch pine from North America, white and yellow pine from Scandinavia, teak from the East Indies and Africa, and mahogany from Central America and India. This would have generated maritime traffic to Scilly, whether via the mainland or directly shipped. Thus it can be seen that at this time shipbuilding would have affected the life and economy of Scilly. The launch of ships was often recorded in the local papers and apparently the launch was often accompanied with elaborate celebrations. Scilly-built ships were of good quality and well thought of '*generally, the Scilly-built ships were very well rated...They gained a reputation of being amongst the best afloat at that time, and most engaged in foreign trade*' (Davies 1988).

By the 1860s, the demand for wooden ships was in decline. Steamships saw not only the decline of shipbuilding on the islands but also of ship ownership. With the exception of the *Little Western* (wrecked south of Samson not far from the wreck of *Colossus*) and the *Lady of the Isles*, no steamships were registered in Scilly in the nineteenth century. The last Scilly-built ship recorded was the *Gleaner*, a 171 ton brig built in 1878 (Davies 1988). The account of shipbuilding on Scilly by Davies (1988) contains a table of 163 vessels built between 1774 and 1877. This gives details of ship name, tonnage, date and builder as well as many interesting details of the ship's career. The figurehead from one of the Scilly-built ships the *Bosphorus*, a schooner built in 1840, is now in the Valhalla collection on Tresco.

The two shipbuilding yards on Town Beach and Porthcressa are jointly recorded in the Cornwall and Scilly HER. The shipyard on Bryher is yet to be recorded.

9.9.5 Tin

There was little tin to mine in Scilly and the evidence of tinworking is slight but there are records of working on St Mary's, Northwethel and Tresco. The remains on Castle Down, Tresco, are of significant interest as they include an openwork, lode-back pits and classic tinner's reservoir with earthwork dam which are probably the result of venture by Francis Godolphin in the mid-seventeenth century.

9.9.6 Flower industry

Scilly's flower industry is said to have started in a small way in c 1879, when William Trevellick of Rocky Hill farm on St Mary's sent an experimental consignment of cut flowers to Covent Garden in a hat box. Its long term success was due to two factors - the establishment of a through railway service to Penzance and steamer service to Scilly which made transportation to market viable, and investment in the industry by Smith's nephew, Thomas Algernon Dorrien-Smith, who studied the Dutch system, introduced new kinds of daffodils and narcissi to the Islands and encouraged islanders to turn their smallholdings into flower farms. The narrow, hedged enclosures (bulb strips) created for this flower cultivation form a very distinctive pattern and are the most visually striking aspect of Scilly's presently enclosed farmland (Ratcliffe 1995, 7).

9.10 Trade and interaction

9.10.1 Piracy and privateering

Leland noted in 1548 that *'Few men be glad to inhabite these islettes, for al the plenty, for robbers by sea that take their cattail by force. The robbers be Frenchmen and Spaniards'* (in Bowley 1968).

Scilly had a notorious reputation as a base for pirates until the end of Elizabethan era. On 1603 Stephen Treveleck, gentleman was interviewed as being from St Martin's in connection with piracy and receiving (Thomas 1985, 222). Contemporary records state that in 1625 there were said to be thirty Saleemen off Scilly and in 1626 it was reported that Scilly had been taken by Flemish privateers

Further research on the subject of piracy and privateering in the sixteenth and seventeenth centuries is desirable.

9.10.2 Smuggling

Smuggling was a major part of the Scillonian economy during the later seventeenth and eighteenth centuries, and both the Admiralty and the Customs Department had various controls of the coast-watching organisations. The first Custom House was built in Well Lane; Hugh Town in 1696, the second was built in c1840 and is now incorporated into the Atlantic Hotel (Johns *et al* 2004, 110).

Smuggling was made more difficult by the stationing of a protection vessel in the Islands after 1784, and by an Act of Parliament of 1790 that allowed the cost of court proceedings to be met out of the sale of seizure and also allocated revenue officers to keep a small share of the proceeds as an inducement. After this smuggling declined and became a still more risky pastime as a result of the Napoleonic Wars and the formation of the Preventative Water Guard in 1809 that patrolled costal waters to tackle smugglers who had slipped past the existing Revenue Cruisers operating further out to sea. The Cornwall and Scilly HER records two smuggler's caches, cavities dug into the cliff face or below ground and used to conceal smuggled goods. One, a good example of its type, is exposed in the cliff face on the north-east side of Porth Mellon, St Mary's. The other, named 'Tobaccoman's Hole' is at Pendrathen although recent monitoring work suggests it is an Iron Age or Romano-British house drain (D Hooley, pers comm. to C Johns). We know of two Preventative Service vessels that were lost, *Fanny*, in 1820 and another whose name was not recorded in 1821. Six chasse-mareés, French coasting luggers often used for smuggling or privateering, were also wrecked in Scilly during the nineteenth century (Johns *et al* 2004, 110).

In addition to revenue work the Guard was detailed to assist in lifesaving after a shipwreck and was a forerunner of The Coast Guard formed in 1822 by an amalgamation of the Preventative Water Guard, cruisers and Riding Officers. In 1831 the main island station was established on the Garrison with subsidiary stations at Telegraph and on Tresco, St Agnes and St Martin's with auxiliary coastguards on Bryher (Gill 1975, 113; Cowan 2001, 13-14). In 1856 the coastguards were transferred to the Customs Department of the Admiralty. The Turk's Head public house, at Porth Conger, St Agnes was originally a coastguard house; part of the coastguard station shown on the 1889 and 1908 OS maps which also comprised a slipway, quay and two ancillary buildings within a levelled area on the cliff top. The two buildings are gigsheds, the *Obadiah & Mary*, which has been restored with grant aid, and the *Gypsy*, which now houses the *Shah* gig. The 1908 OS map also shows a coastguard lookout at Giant's Castle on St Mary's, on the cliff edge within the Iron Age cliff castle (Johns *et al* 2004, 110).

9.10.3 The nineteenth century Scillonian merchant fleet

The sailing ships built in Scilly in the nineteenth century were owned by islanders and often officered and crewed by them too. Ownership was divided into 64 shares in the English way; command often depended on the investment of the would-be captain. Such investments could be profitable and the best voyages paid 30% to the shareholders. Two shipping companies were formed in the islands. In 1864 the largest fleet of 13 vessels belonged to the Banfields, but only 18 of the 35 registered vessels in that year were built in Scilly. Cargoes included tea from China, grain from the Black Sea, guano from the Chincha Islands, wool and grain from Australia, currants from the Mediterranean and fish from Newfoundland; voyages could last several years (Gill 1975, 103-4).

The Scilly fleet faded as steamships took over, the last survivors were ketches carrying coal to the islands and other cargoes such as china clay from Fowey or onions from Roscoff. Peat was the main fuel in the islands until well into the nineteenth century, the coal trade developing from the 1860s (Gill 1975, 104-5).

9.10.4 Tourism

As well as providing a means of transporting flowers to Covent Garden, the improved rail and sea transport of the mid-nineteenth century marked the beginning of Scilly's tourist industry and this now forms the largest part (85%) of its economy with 37% of the Islands' PAYE employees working in the tourism sector. The Islands attract about 90,000-100,000 visitors per year which is about 50 times the resident population of the Islands. Repeat visitors account for 65%-75% of tourists, the majority of whom are over 45 years old. The main attractions for visitors are walking (95%), inter-Island boat trips (85%), eating out (80%), wildlife/bird-watching (60%), arts/crafts (30%) and sailing/water sports (20%). 64% of visitors choose Scilly as their main holiday with 48% staying 5-7 days, 9% for 8-10 days and 25% for 11 days or more (Isles of Scilly AONB Unit 2010, 107).

While the main visitor season has traditionally run from Easter to October, such as the 'Walk Scilly' festival in late-March and the promotion of winter breaks have begun to extend the season into the shoulder periods. An increasing number of cruise-liner passengers come ashore on Tresco and St Mary's, and Scilly also attracts thousands of visiting yachts, each contributing to the Islands' economy. In addition to direct economic benefit through visitor spending, tourism helps to sustain a broader range of shops, services and entertainment than Scilly's small resident population could support alone (*ibid*, 108).

9.11 Religion and ritual

9.11.1 Anglican

From the Reformation to the end of the Civil War there are very few direct references to religious establishments in Scilly. Today's Anglican churches were built or refounded in the 50 years or so after the Restoration (Thomas 1985, 222, 230). St Martin's church was built around 1683 by Thomas Ekins, the Godolphins' Steward in the Islands, and repaired in 1820 by George Woodley (SPCK missionary minister for St Agnes and St Martin's). All Saints, Bryher dates from about 1742 and was enlarged in 1882. The church at Dolphin Town, Tresco was built in before 1722, and a new church was built on, or nearby, the site of the old one in 1879 (Matthews 1960, 225). On St Agnes the salvage reward from a deserted French boat was used to pay for a new church in 1685, the present church is early Victorian (Thomas 1985, 230). The new church on St Mary's was built to Augustus Smith's own design by 1839.

A clergyman known as the 'Chaplain' was appointed to the Islands on 1662, but some of these spent little time in Scilly (Cowan 1991, 6). Since 1932, the Chaplain has been legally Vicar of St Mary's but with rectorial oversight of all the inhabited islands which constitute a single dispersed parish in the diocese of Exeter from 1838 to 1877 and from then on in the newly constituted see of Truro (Thomas 1985, 222, 230; Matthews 1960, 225).

9.11.2 Methodist

John Wesley visited Scilly in September 1742 and preached twice in the streets of Hugh Town. In 1788 a Wesleyan Society was formed on St Mary's by the Rev Joseph Sutcliffe from St Ives with church in Garrison Lane. Chapels were added at Holy Vale in 1815, Old Town in 1819 and Tresco in 1819. The Garrison Lane church was rebuilt between 1825 and 1828 (Gill 1975, 177-8).

In 1821 the Bible Christians, a Cornish breakaway movement from Wesleyans, sent a young missionary, Mary Anne Wherry, to Scilly. By 1832 they had chapels in Hugh Town and on St Martin's and St Agnes, with three resident ministers. In 1836-7 they built a church in Church street, rebuilt again in 1900 (Gill 1975, 178).

In 1851 there were five Anglican churches with 1,274 seats, three Wesleyans with 734 seats and four Bible Christian with 515 seats (Gill 1975, 78).

In 1907 a national merger made the Bible Christians into the United Methodists, who in turn amalgamated with the Wesleyans in 1932 to become the Methodist Church. The Scilly Union came in 1934 and eventually established itself in the former Bible Christian Church. St Martin's is the only off island which still has Methodist Church, in the care of local preachers and the St Mary's minister since the last resident minister in the 1950s (Gill 1975, 178).

9.11.3 Baptist

The Baptists arrived in the Islands in the early nineteenth century. The Rev G C Smith of Penzance who first visited Scilly in 1814 was the main agent in calling national attention to the distress of the off islands. The Baptist Itinerant Aid Society established Scilly as their first missionary station with chapels on the Strand in Hugh Town, at Maypole and on all the inhabited islands including Samson. Augustus Smith fell out with the Baptists and in 1843 'caused notice to be served at all the chapels' so that they were closed, although a new Baptist chapel was built on Bryher in 1874 which continued in use for nearly a century before being converted into private house in 1972 (Gill 1975, 178-9).

9.11.4 Roman Catholic

The Roman Catholic Church returned to Scilly in 1930 when the Canons Regular of the Lateran from Bodmin Priory took over a building in the Strand which Augustus Smith

had built as girls' school in 1860, and which became the Church of St Mary Star of the Sea (Gill 1975, 179).

9.11.5 Institutional ritual

Hugh Town had its first lodge of Freemasons in 1756, formed by the Collector of Customs, Isaac Head, who had been appointed by the Grand Lodge of England as Provincial Grandmaster of the Province of the Isles of Scilly and Adjacent Isles. He was the first master of Lodge Dolphin (no 365), reformed as Lodge Godolphin (no 281) in 1783. Its members seem to have been formed by non-islanders although a few pilots were members. Its strength diminished after the arrival of Augustus Smith, although he was a Freemason and later Provincial Grand Master of Cornwall. The lodge was erased in 1851 and reformed in 1961 (no 7790) (Gill 1975).

9.12 Social provision

'Social' provision is a wide area which touches upon other areas such as burial and cremation. While coverage by archaeologists is patchy much has been done by economic, social, cultural or popular historians and writers (e.g. Matthews 1960; Gill 1975). Many surviving structures feature in the Cornwall and Scilly HER but there is need to identify and record lost or buried elements or sites to complete the record (cf Bone and Dawson (eds), 2008, 241).

9.12.1 Water supply, sewerage and drainage

The main source of water for the Islands has always been wells, augmented by collected rainwater. Since the 1950s Hugh Town has had piped water from reservoirs on Buzza Hill and Garrison Hill to which water from wells is pumped. In 1955 only 97 out of 528 houses on St Mary's were without piped water but over third were without water closets. The Duchy installed mains sewerage in Hugh Town in 1938. Outside of Hugh Town cesspits have gradually replaced east closets. All Tresco had piped water by 1969, and water mains were laid on Bryher in that year. St Martin's and St Agnes remained without any mains facilities although a sewerage scheme for St Martin's was prepared in 1974 (Gill 1975, 164).

9.12.2 Heat, light and public power supply

Hugh Town had its first street lights in 1883. The Jubilee in 1933 was celebrated by the installation of 21 electric lights throughout the town which was made possible by the formation in 1931 of the St Mary's Electricity Supply Co Ltd which built power station in Worsall's quarry off Church Road. The South Western Electricity Board (SWEB) took over in 1957 (Gill 1975, 166).

Tresco Estate set up its own generator at the back of the home farm, linking up the entire island. The other off islands set up their own generators too, Bryher and St Agnes in 1945 followed by St Martin's. Mains electricity was finally brought to the off islands in 1985 by the Off Islands Electrification Project (Ratcliffe 1991).

9.12.3 Waste disposal, burial and cremation

Coastal communities on Scilly used the beach and tide to remove rubbish. Rubbish collections started on St Mary's after World War One with a tip on Porth Minick replaced by another on Lower Moors, which is still in use. An incinerator was installed there in 1969. On the off islands the disposal of rubbish is still largely a private affair (Gill 1975, 164-5).

9.12.4 Dealing with poverty, sickness and disability

Hard times

Life on the off islands always may have been harsh but the failure of potato and corn harvests in 1817 was disastrous, and boiled limpets became the mainstay of the diet. The 'distress period' is described in detail by Matthews (1960, 125-62) who divided it

into two periods from 1818 to 1819 and from about 1822 to 1834. There were a number of contributory factors including the curtailment of smuggling which, with pilotage and kelp burning, had become a major component of the Islands; non-agricultural economy (Thomas 1985, 253). The Revd Lane, the SPCK clergyman on Tresco alerted the authorities regarding the misery of the people on Tresco. The Baptist Minister, the Revd G C Smith raised substantial relief fund and visited Scilly distribute food and later to make an inspection of the poverty there. The Magistrates of West Penwith Hundred sent a deputation under Sir Rose Price to report on conditions. `

After much petitioning the Government made a grant, which with an improved kelp and lobster season in 1818 eased the situation. With the aim of establishing a fishery and other relief projects in the Islands nearly £10,000 was donated following a national appeal and there was temporary recovery in 1821-22. However in 1822 the kelp industry was threatened by the introduction of barilla, an alkali mainly produce in Spain, Sicily and the Canary Islands, and the lobster fishery suffered a setback when vessels refused to come from Southampton to purchase them, as they had before. The pilchard fishery set up under the relief fund had initial success but the nets were wearing out, moreover there were questions about the management of the fund.

By the end of 1822 the second period of distress had set in. The Revd George Woodley who was now the SPCK missionary for St Agnes and St Martin's drew attention the Society's and the Home Secretary's (Robert Peel) attention to the matter. *In some huts were found six or nine individuals crowded together indiscriminately on a most wretched substitute for a bed: having no other furniture than a large stone, with a sod on it, for seat, & a couple of planks serving for A table...this is comparatively trifling to the distress which had existed a short Time before, when misery and starvation prevailed to a degree that would shock the most unfeeling heart to witness` (Revd Woodley quoted in Cowan 1991, 31). Peel called for a report as a result of which the Government sent a quantity of barley and £100 for the purchase of necessary clothing and later 100 quarters of wheat. The situation was exacerbated by the demand of payment of arrears of rent by the Duke of Leeds in 1825, the withdrawal of Government external relief and prolonged drought in the summer of 1825. Although there was an increase in kelp production the failure of the potato crop throughout the Islands in 1826 brought disaster in 1826. The distress lasted until 1834; however reports of it became less frequent.*

Augustus Smith

For Augustus Smith, an energetic Victorian interested in 'improving the lot of the labouring classes', Scilly (for years misruled by the agents of absentee landlords and struggling under difficult economic conditions) represented the ideal challenge. Adopting an autocratic role, he began by reallocating farm lands, which had become minute and scattered by sub-division, and introduced a system of inheritance by which land passed only to the eldest son, all other offspring being forced to find alternative employment. Smith encouraged this by financing existing and new local industries, building schools on all the main islands and making education compulsory (thirty years before this became law on the mainland). He broke with tradition by becoming a resident landlord and erecting his house not on St Mary's but on Tresco, next to the remains of the medieval priory, around which he created a sub-tropical garden out of bare moorland. In fulfilment of a condition of his lease, in 1838 Smith built a new quay (connecting Hugh Town Old Quay with Rat Island) and St Mary's church (Ratcliffe and Johns 2003).

By 1834, when Augustus Smith took over the lease of Scilly, a vulnerably small population, chronic water shortage and fragmented farms made life on Samson very difficult. As part of his economic reform Smith initially encouraged people to leave and in 1855 evicted those few who remained. Their ruined houses and stone-walled fields lend a sad air to South Hill, which Smith later enclosed in an abortive attempt to create a deer park (Ratcliffe and Johns 2003).

We only know about very limited aspects of Augustus Smith's administration. For instance, we still know very little about his actual impact on landholding, the re-shaping of farms and creation of new boundaries, for example, or the impact of his policies on other aspects of the historic environment. He is believed to have made building leases which provide the context for the 're-building' of Hugh Town from about the 1830s, for example, but apart from a couple of lines in Matthews (1960) the process is not documented.

Health services

In Robert Heath's time (1750s) there were no doctors on the Islands except for the occasional Garrison surgeon. A 'society of skilful aunts' cured with herbs and limited medical supplies and were midwives, dentists etc. Resident doctors arrived in the nineteenth century (Gill 1975, 165).

An influenza epidemic led to the formation of a Nursing Association which set up two nurses on St Mary's and Tresco to supplement the doctor's work (Gill 1975, 165).

The introduction of the National Health Service in 1948 brought many improvements to island facilities. By 1950 there were two resident doctors and resident dentist. Special hospital cases were sent to the mainland but six specialists attended the island hospital. In 1953 health clinics were opened on St Martin's and St Agnes in addition to the long-established district nurse's cottage on Tresco. The hospital was extended in 1965 and there has been a special medical launch since 1972 (Gill 1975, 165-6).

9.12.5 Emergencies and law and order

Scilly has been comparatively free of serious fires although Holy Vale and Mount Todden were burnt down in the eighteenth century and one side of Hugh Street was destroyed by fire. The only fatality of modern times was in 1944 fire at Borough, Tresco. Until the late 1930s only bucket chains and extinguishers were available although there were calls for voluntary brigade after a fire in Hugh Town in 1930. During World War Two Auxiliary Fire Service crews came over and trained local men, by that time there were eight hydrants in Hugh Town (Gill 1975, 168-9).

When the National Fire Authority reverted to local control in 1948 the Council of the Isles of Scilly became a fire authority, the smallest in Britain, and without any professionals (Gill 1975, 169). The fire station was formerly at the east end of Porthcressa and is now the Dibble & Grub café (Leung nd [2010]). The fire station is now located on the Porth Mellon industrial estate.

On the off islands heath fires have always been a problem. When a house burnt down on Bryher in 1955 a fire engine was taken across from St Mary's, subsequently each island was supplied with modern portable fire-fighting equipment and volunteers trained (Gill 1975, 169).

Scilly has long had reputation for being law abiding and many doors are still left unlocked. Each parish vestry used to elect its constable annually. After a spell of drunkenness and fighting between visiting fishermen in 1861 the constable of St Mary's was given a uniform and a small wage and was required to patrol the town and ensure the public houses closed at 11pm (Gill 1975, 168).

In 1892 a Joint Police Committee was set up of the council and magistrates. This body amalgamated with the Cornwall Constabulary, which supplied first one and then two constables based in the Police House on the Parade with a cell at its back. With the regionalisation of police forces Scilly came under the Devon and Cornwall combined police authority and in 1974 had a sergeant and two constables in a specially built police station in Hugh Town (Gill 1975, 168). Magistrates meet in the Town Hall to hear minor cases.

9.12.6 Education and learning

Godolphin set up charity schools in the Islands in 1747. The first interest of the SPCK was educational and the society established schools in the six then inhabited islands by 1774. These were essentially 'dame schools' with mainly aged teachers, although there was Duke of Leeds School in Hugh Town whose master was sufficiently educated to be clerk to the Council of Twelve, and in 1808 the SPCK missionary on St Agnes (Gill 1975, 179).

After the SPCK departure Augustus Smith built new schools on all the islands. In 1851 there were ten schools with 755 pupils and Smith made attendance compulsory in 1856 by charging parents 1d a week but 2d for children who stayed at home. In Hugh Town he built a new infants' school (now the Church Hall) and a girls' school behind the Strand (now the Roman Catholic church), the boys remained at Carn Thomas which was rebuilt in 1878 (Gill 1975, 180).

With the Education Act of 1902 the Council of the Isles of Scilly became the local education authority. Carn Thomas was enlarged and took back the infant and girls' departments in 1906; children of Grammar School standard were boarded on the mainland. The Butler Education Act of 1944 which required Secondary education for all meant building a second school on St Mary's or sending all over children over 12 to the mainland. The new school opposite Carn Thomas started as a secondary modern in 1965, but was opened as a Comprehensive in 1958. Off island children boarded and went home at the weekends and sixth formers were boarded on the mainland (Gill 1975, 181-2). The new Five Islands School Base at Carn Gwaval St Mary's, which enabled sixth-form education on the Islands, was opened by the Queen in 2011. There are still primary schools on St Agnes, St Martin's and Treco.

9.12.7 Recreation and leisure

The main inter-island sport is gig racing (see above section 9.8.3).

Cricket was introduced by Augustus Smith and there are cricket pitches on the Garrison, St Mary's, Treco, St Agnes and St Martin's. There are two football teams, formerly called the Rovers and the Rangers and now the Woolpack Wanderers and the Garrison Gunners, both based on St Mary's. There are tennis courts on the Garrison and on St Agnes and St Martin's. The St Mary's golf club was founded by Dr Brushfield in 1904 (Gill 1975, 171-2).

St Mary's first cinematographic show was in the Town Hall in 1898. Film shows were begun in the Bible Christian Hall in 1927 and the first talking movie was shown in the Atlantic Hotel in 1934 by Bertie Ashford in partnership with Harold Solomon he took over the old Wesleyan chapel and installed 16mm talking cinema projectors, in 1950 the building reopened as the Plaza, under new management from 1963 it eventually closed in early 1973 (Gill 1975, 173). The building was bought by the Council in 1975 and demolished within a year. There is an account of the history of the cinema in the monthly magazine 'Scilly Now & Then' nos 41 and 42.

Colour slide shows of various aspects of Island life – natural history, archaeology, shipwrecks, diving etc – are still a popular summer evening entertainment for visitors.

The social centres on the off islands were the Reading Rooms. St Martin's Reading Room was built by the islanders in 1932 (Gill 1975, 173-40).

9.13 Defence and warfare

Military matters are the subject of a number of publications, for instance 'Scilly at War' which focuses on the Civil War and World Wars I and II (Bowley 2001). The post-medieval and modern defences have very recently been studied in the well-researched English Heritage publication 'Defending Scilly' (Bowden and Brodie 2011). In addition survey reports have recently been published by English Heritage and papers written on Scilly's Tudor defences and Abraham Tovey (Brodie 2010; Brodie nd), The collapse of

the north-east corner of Lower Benham Battery in a storm in October 2004 (Johns and Sawyer 2005) provided an impetus for the development of a Conservation Plan for St Mary's Garrison, which was completed in 2010 (Johns and Fletcher 2010).

There are also original sources such as J P Osborne's Scillonian War Diary 1914- 18 (1990).

9.13.1 Fortifications

In the mid-sixteenth century the defence of Scilly, strategically important as the most westerly anchorage and the first landfall for naval ships and merchantmen assumed a new importance resulting in the building of fortifications to guard the main approaches, harbours and anchorages. Erected between 1548 and 1554, they include King Charles' Castle, Tresco and three blockhouses; one on the site of Cromwell's Castle and another south of Old Grimsby, both on Tresco, and a third on the north east coast of St Mary's. A fort, Harry's Walls, incorporating newly-introduced angled bastions, was begun but never completed on Mount Flagon, overlooking St Mary's Pool, and guns were mounted on The Hugh (perhaps in an earlier castle on Mount Holles or in a fort on the south side known as *The Folly*). Henry VIII maintained a garrison at Ennor Castle, from 1544-47 and during Edward VI's reign it continued to defend Old Town harbour, being used as the armoury for the main body of the garrison which by 1554 consisted of 150 men with five light cannon (Leland in Chope 1918, 23).

Removal of debris and trial excavation at King Charles' Castle were carried out in 1954 (Miles and Saunders 1971, and see above section 9.3.1) and the 1627 earthwork on the landward side of the castle was surveyed by the Cornwall Archaeological Unit in 1992 (Ratcliffe 1993).



Fig 9.13 Star Castle and the Garrison (photo: Cornwall Council)

From the late sixteenth century the defence of Scilly has centred on the Hugh, the southern promontory of St Mary's which became known as The Garrison and which attracted to its isthmus the island's main settlement, Hugh Town, a shift of focus from Ennor Castle in Old Town. The site was chosen to counter Spanish privateering and invasion threats because it controls deep water channels to Scilly's main harbour. With advice from Robert Adams, England's coastal defence expert, Star Castle was built by

the Governor Sir Francis Godolphin for Elizabeth I in 1593 (Fig 9.13). A curtain wall and batteries across the land approach followed with ancillary buildings within, and a quay in the harbour below. Most of the cliff top earthworks and gun platforms date to the Civil War (1642-1651 in Scilly). Scilly was Royalist in sympathies, The Garrison surrendered in 1646, but the islands rebelled to become the last Royalist stronghold, the base for up to '800 men, besides an immense number of officers', before final defeat in 1651. Most of the earthen breastworks and batteries around the main islands' coasts date from this period. Cromwell's Castle on Treco, erected in 1651-2, is believed to have been built on the site of a Tudor period blockhouse.

In 1990 CAU carried out recording of the early batteries of the Garrison following severe storms (Parkes and Ratcliffe 1990). A survey of Star Castle was undertaken by Keystone Historic Buildings Consultants in c1992 (Cox and Thorp 1993), and a watching brief was carried out there during cable laying in 1992 (Young *et al* 1993). In May 2006 English Heritage carried out an evaluation of the seventeenth century breastwork and a gun platform at Doctors Keys to inform the Conservation Plan (Fellows 2007)., which was completed in 2010 (Johns and Fletcher 2010)

During the Spanish Wars between 1715 and 1750 the Garrison was refortified under Abraham Tovey, when the walls were extended round all but the north-west coast, inside the old breastworks, Elizabethan structures were rebuilt and new buildings added. The sequence of construction is detailed in Bowden and Brodie 2011.

During the Napoleonic Wars (1793-1815) the Garrison was rearmed and '*Great soldiery kept up on all the Islands*'; stations were built on St Martin's and St Mary's, signalling via ships to posts along England's south coast. A proposed roadstead for men-o'-war in St Mary's Roads, which would have entailed dredging the harbour is shown on a chart of 1808 but was never realised. After Waterloo the Garrison was occupied by army invalid gunners who maintained the barracks and cliff top gardens, but the fortifications with their ancillary buildings were neglected or rented out by mid-century.

During the period 1890-1910 the Islands were intended as a signalling and refuelling base in the event of war with France. Scilly was refortified principally by the massive Woolpack and Steval batteries and associated works on the summit of the Garrison, including three DELs (Defence Electric Lights) which were rangefinding searchlights below Steval Point and Woolpack Batteries. Extending south east in a straight line across the rocky shore from Southward Well Point, Samson is an extant line of upright stone posts used to calibrate the range finder at Steval Battery.

The Garrison was not extensively remodelled to maintain its defence of Scilly in the twentieth century; some of the new works such as a WWI kite balloon observation base and WWII firebreaks and barbed wire entanglements have left very little trace. Adaptions of existing fortifications ranged from the occupation of Star Castle to the skilful concealment of World War II pillboxes in eighteenth century batteries such as the Woolpack Battery. Twenty-seven pillboxes were built around the coast of St Mary's.

Charles Thomas has studied the derivation of the names of the batteries on the Garrison (Thomas 1979). The Garrison SMR was updated in the early 1990s and a popular leaflet with circular was produced (CAU 1992), there is also an AONB guided walk leaflet (Sawyer nd) and one by Archaeological and Archival and Mainmast Conservation (2008). Paul Ashbee (1985) considered that '*Scilly's Garrison, as progressively modified and developed down the years, is probably the most impressive work of its kind extant in England*' while Richardson and Gill (1924) described the Star Castle as 'one of the most perfect Elizabethan structures in existence'.

9.13.2 Flying Boat stations

The Cornwall and Scilly HER records two World War I flying boat stations, in Scilly At Porth Mellon, St Mary's all that survives above ground is a concrete base, at Abbey Farm, Treco, some original 1916-18 buildings survived and also a concrete base, iron railings and slipway and an earlier wooden slipway and footprint of buildings. These

were affected by the redevelopment of Abbey Farm in 2006-7 (Wessex Archaeology 2006b; Sawyer 2008).

9.14 Scientific dating

9.14.1 Radiocarbon dates

The single radiocarbon determination listed below in Table 9.14 below has been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they appear.

Lab Ref	¹⁴ C age BP	CAL AD @95%	Site	Context	Reference
GU-2520	280±50	1463-1953	Big Pool, St Agnes	Upper band of peat & organic sediment	Scourse 1986

Fig 9.14 List of post-medieval radiocarbon dates

9.14.2 OSL dating

Optically Stimulated Luminescence dating of quartz from marine and aeolian deposits on St Agnes was carried out in 1999 (Bannerjee *et al* 2001). Proposed tsunami-laid deposits at Big Pool provided ages of 230±40 and 380±60 years; both are consistent with an expected age of 244 years (the Lisbon earthquake occurring in 1755). An OSL age of 6±3 years was obtained on a modern sub-aqueous beach deposit. These results suggest that the OSL signal in the tsunami-laid quartz was completely reset before deposition, and that these sediments can be dated accurately by OSL dating techniques. Sand dunes at Bergecooth, 250 m south of Big Pool, were also dated using OSL. These ages indicate phases of aeolian activity at ~ 300a and 1000a in the Scilly.

OSL dating was carried out on modern quartz as a control during the Lyonesse Project in 2010. OSL ages of 3±2 were obtained from samples from Crab's Ledge and Bathinghouse Porth, Tresco (Aberystwyth Lab Nos 161/LPTR1-M and 161/LPT3-M) (Roberts 2012).

Location	Lab no.	Context	Material	OSL Age BP	Calibrated date (95% confidence)
Big Pool, St Agnes	BP-90S	marine and aeolian deposits	Quartz	380±60	
Big Pool, st Agnes	BP-22S	marine and aeolian deposits	Quartz	230±40	
Nr Big Pool, St Agnes	SA-295	modern sub-aqueous beach deposit	Quartz	6±3	
Crab's Ledge, Tresco	161/LPTR1-M	0.005 ± 0.005 down core	0.005 ± 0.005	3±2	
Bathinghouse Porth, Tresco	161/LPT3-M	0.005 ± 0.005 down core	0.005 ± 0.005	3±2	

Fig 9.15 List of post-medieval OSL ages, expressed as years before AD 2010, rounded to the nearest 10 years

10 A Research Agenda for the historic environment of the Isles of Scilly

Edited by Charles Johns

10.1 Introduction

The Resource Assessment has provided an overview of the current state of knowledge and demonstrated the depth and diversity of Scilly's historic environment. This Research Agenda sets out to identify a) gaps in the current state of knowledge, b) the potential of the historic environment resource and research priorities, and c) key research themes and aims. The structure and research themes of the SHERF Research Agenda are based on the South West Archaeological Research Framework (SWARF), to which it relates (Webster 2008). The SHERF research themes and aims are also presented chronologically by period in Section 10.4 to make them more accessible for those researchers who specialise in certain periods or for artefact types e.g. Roman ceramics.

10.2 Research Themes and Aims

10.2.1 Methodology

Some of the research aims can be classified as a need for improved methodologies; not questions about the past itself but suggestions to improve the way we find out about it. In some periods this extends to the very discovery of sites and deposits that could be studied; in early prehistory because of geomorphological change and later because of a lack of diagnostic artefacts. There are also techniques that, once developed, are not applied routinely when they would provide very valuable basic data.

Research Aim 1: Extend the use of proven methodologies for site location and interpretation, and encourage the development of new techniques.

1. There is a need to improve the existing Lidar coverage of Scilly. The existing resolution is not really good enough for archaeological purposes and it would be good to have better resolution flown at 0.5m or less. In addition to its use in surveying relatively small topographic detail indicating the former presence of earthworks, Lidar intensity can be used to show variations in soil moisture and thereby look for ditches and palaeochannels that may have no surface visibility using other techniques.
2. There is a need for further geophysical survey to be carried out for both land and marine sites. The efficacy of using marine geophysical survey to prospect for and map submerged palaeoenvironmental deposits has been demonstrated by the Lyonesse Project (Charman *et al* forthcoming).
3. A systematic programme of fieldwalking would help to identify potential archaeological sites (see below Research Aim 5). The 1985 Electrification Project, for example, demonstrated the potential for identifying archaeological sites in Scilly from artefact distributions (Ratcliffe 1991).
4. There is a need for synthesis of existing data from all periods to better understand the resource and relevant research questions and for excavation using modern techniques and recording systems order to address these. Comparatively few excavations have been carried out in the Scilly since the early 1970s while over the same time period investigative and analytical techniques have markedly improved (e.g. Optically Stimulated Luminescence (OSL) and Amino Acid Racimization (AAR) dating).
5. Greater use should be made of ceramic petrology, lipid analysis and other techniques to track pottery production and use in all periods.

6. Considerable potential exists to study life-time mobility, diet and health through re-analysis of human and animal remains. Extensive analysis of oxygen and strontium isotopes, in both people and animals, should revolutionise our understanding of patterns of mobility during these periods, which is especially important with an island population.
7. We should consider revising or updating the way wrecks on the seabed are recorded. Terrestrial archaeology utilises a context-based recording system but underwater – the recording is usually based on a plan or survey. Although this is mainly due to the constraints of operating underwater, we should consider the use of context-based systems underwater and improved position fixing, carefully appraising the gains made in the record but setting these against the additional time taken to complete the recording.

Synthesis

There is a need for up to date, thematic and period-based synthetic studies which draw on the 'grey literature' resource.

Research Aim 2: Encourage works of synthesis within and across periods, settlements, monuments and areas.

1. It would be extremely useful to draw together and disseminate existing information on earlier Bronze Age grave assemblages from Scilly. This may facilitate a better understanding of material sequences, object biographies (such as the presence of heirlooms), the expression of social identity through material culture, and bodily display.
2. The Later Bronze Age is lacking in synthetic treatment and thus interpretation often remains at the site level. This is exacerbated by the large and increasing amount of data for the Middle Bronze Age, particularly for settlements. A systematic Scilly-centred review of Middle and Late Bronze Age and Iron Age data would significantly increase our understanding of the period, particularly if it is integrated with the often good burial data and well-documented metalworking traditions.
3. Synthesis is needed for the Roman period in Scilly – settlement forms, material culture, external contacts, the Nornour shrine, Mount Holles altar, etc. See 10.3.1.7/9 and 10.
4. During the entire historic period, the current interpretive framework is still conditioned by the meagre historical narrative. Greater weight needs to be attached to multi-disciplinary work with colleagues in areas such as landscape studies, historical geography, economic history etc.
5. Much important work remains unpublished and the contents of 'grey literature' are not always easily accessible. There is, therefore, an urgent need for synthesis to develop our understanding of work already completed and to encourage the development of a broader archaeological view of the period.

Spatial and Temporal Biases

The Resource Assessment exercise has highlighted the uneven coverage of some periods in the Islands. Some of this is due to a bias towards areas with good evidence at certain periods but, as Robinson (2007, 5) has pointed out, much of the fieldwork carried out in Scilly until the later twentieth century had a 'vacational aspect', resulting in a piece-meal approach to research. This has also resulted in the reiteration of the study of a number of recurring major themes, namely

- Entrance graves
 - The submergence and paleoenvironmental history of the islands
 - Porthcressa-type cist graves

- Early medieval hermitages
- The post-medieval and modern defences of the Islands

Research Aim 3: Address apparent "gaps" in our knowledge and assess whether they are meaningful or simply biases in current knowledge.

1. The early prehistory of Scilly is poorly understood and we do not know whether the Islands were permanently or seasonally / sporadically occupied.
2. We know little about non-ecclesiastical early medieval settlement.
3. The systematic scrutiny of Scilly's historic buildings, advocated by Paul Ashbee (1986), remains to be carried out.
4. The archaeological investigations which have taken place on the Garrison have mainly been directed towards the military works and almost nothing is known of human activity on the Garrison prior to the late sixteenth century.
5. Apart from a reputed drop in population, we know very little about life on Scilly, especially on the smaller islands, during the century following the Civil War

Community Involvement

Public interest in the historic environment has never been higher and there is a need to respond to this. Increased public involvement is a requirement for many funding streams and also raises the profile of the historic environment with decision-makers. Many people already volunteer their time and enthusiasm to care for and interpret the historic environment resource in Scilly and to draw in other resources to help them achieve their goal. They do this through the Isles of Scilly Museum (IOSM), the Family History Group, and the Isles of Scilly Wildlife Trust, or on an individual basis. They have a vital role in conserving the historic environment resource, in spreading appreciation for the historic environment and an enormous potential for improving public understanding of it. During the last two years many people have expressed interest in forming a community archaeology group on Scilly which should be taken forward.

Research Aim 4: Encourage wide involvement in archaeological research and present modern accounts of the past to the public.

1. The IOSM plays a vital role in engaging the public with the historic environment of Scilly.
2. There is considerable public interest in forming a Community Archaeology Group in Scilly; however someone needs to organise it and insurance for field activities is also an issue.
3. Initiate community monitoring programme of archaeological sites threatened by coastal erosion (see Research Aim 21)
4. Establish a database of sites threatened by coastal erosion and a co-ordinated coastal monitoring programme.
5. The Isles of Scilly Family History Group has huge potential to help address Research Aim 40 'Use archaeological and historical evidence to better understand Scillonian identity through time'.
6. There is scope for a structured programme of recording oral history.

Recording

Many of the artefacts that survive from the past are not found in the secure contexts of an archaeological excavation. Whether found by beachcombers, field walkers, dog-walkers, or earlier excavators, these finds need to be collated to provide the widest possible evidence-base for study. Responsibility for collection, recording and preservation of archaeological remains needs to be recognised as a fundamental role held in common by all archaeological institutions, including archaeological societies.

There is scope for far greater collaboration in carrying out research and applying standards of approach, process, preservation and dissemination of the resulting information.

Research Aim 5: Encourage the study of artefact scatters using traditional and innovative methodologies both in the field and on previous collections.

1. Attention should be paid to lithic scatter resources, in particular the specific evaluation and/or re-evaluation of 'grey collections', and the development of appropriate interpretive methodologies which maximise the potential value of this landscape-scale, off-site resource. The 'grey collections' principally consist of artefact assemblages from both museums and private collections. Emphasis should also be given to assessing the presence and potential size of the non-flint lithic component of Scilly's archaeological record.
2. Lithic scatter artefacts remain problematic, given the frequent absence of independent dating and the tendency of much of the material to be highly undiagnostic. There is therefore a need to review the relationships between the resource, the Portable Antiquities Scheme (PAS), the IOSM and the RCM, and consider developing or modifying strategies to promote the accurate reporting of lithic material and providing (where possible) artefact identification services.
3. Approaches to the investigation and interpretation of lithic scatters have become rather mechanical. We need to think of new forms of interrogation and interpretation, perhaps working within finer temporal and spatial scales.
4. Mapping of the scatter of previously recorded medieval pottery, especially if accompanied by systematic fieldwalking, may well have the potential to make a contribution to understanding the location of early medieval and medieval settlement and farmland.
5. The presence in Scilly of unusually large amounts of medieval French pottery such as the assemblage on the seabed in Tresco Channel is of interest – the possibility that the remains of a medieval wreck (c 1300) exists there cannot be discounted. Given the apparent absence of any boat or ship remains in Scilly before the post-medieval period, this merits further study. The need for more systematic study of pottery from the shipwrecks of Scilly has been highlighted. Where possible, this should be integrated with existing projects on these sites (see below Research Aim 12).

Research Aim 6: Encourage the accurate reporting and identification of stray finds in ways that benefit archaeological research as a whole.

1. We need to publicise the finds reporting process more widely; the IOSM has a useful Code of Conduct leaflet which could be updated.
2. New finds are always being made, and this combined with the rolling out of the Portable Antiquities Scheme will continue to offer new opportunities to examine the depositional contexts and associations of new finds. This will also represent a great opportunity to increase our understanding of older 'isolated' or 'stray' finds.
3. The data produced by the Portable Antiquities Scheme needs to be critically reviewed to assess its quality – both in terms of identification and locational accuracy. There is an urgent need to link PAS data to HER records for Scilly and see if it tells any stories other than chance loss! Specifically anything that enhances the Cornwall and Scilly HER should be encouraged
4. The potential for identifying (and the costs of dealing with) any surviving context for the finds also needs to be considered.

Research Aim 7: Improve the recording and utilisation of archaeological collections and other information sources.

1. The Isles of Scilly Museum should be recognised as the appropriate repository of archaeological material and archives by all involved in the process of acquiring archaeological evidence in Scilly. However specialised storage requirements (e.g. for metalwork) and adequate space (e.g. for large stone artefacts) may present future issues which may need to be kept under review.

Transitions

Most archaeological research is concerned with the tangible evidence of cultural change. It is perhaps easier to recognise that activities and artefacts have altered than it is to understand the significance and meaning of continuity; ironically the periods that cause us most trouble are characterised to a large extent by a lack of change. However, significant transitions between one period and another are used too often as academic boundaries. Study, both across and between boundaries, should be encouraged to define and explore the changes that occur in these transitional periods.

Research Aim 8: Address our lack of understanding of key transitional periods

Understanding of the processes behind, rates of change, and local consequences of the Mesolithic–Neolithic transition is hindered by a long-standing scholarly divide between people working on these periods. There is a need for a ‘joined-up’ approach to the events of the late fifth–early fourth millennium BC. What does the apparent absence of ‘complexity’ in Scilly’s late Mesolithic tell us about the Mesolithic–Neolithic transition? We need to know more about the extent and chronology of coastal change during this period, given the evidence elsewhere for the coastal focus of latest Mesolithic communities. Understanding this critical transition will also require the excavation of the right sorts of contexts, for instance in the vicinity of Old Quay, St Martin’s. How do we expect ‘transitional’ sites to manifest themselves, and can we confidently identify transitional lithic assemblages? We need to establish better dated chronologies to improve understanding of this crucial period in British prehistory. High resolution analyses are needed over a 1000-year period. Specialists should also look for evidence of domestication in deposits considered to be late ‘Mesolithic. Further information could be obtained from a study of insect evidence for browsing under woodland conditions around the transition (suggestion from Robinson 2002).

Key transitional periods are:

- The Mesolithic/Neolithic transition.
- The Neolithic/Beaker/Early Bronze Age transition.
- The Middle/Late Bronze Age transition.
- The Late Bronze Age/Iron Age transition.
- The Romano-British/early medieval transition.

Hidden Resources

Many of the archaeological resources of the Islands lie not in the ground but in the stores of museums, archive offices, contracting units, the HER and in individual collections. Study of these records and artefacts can be far more cost-effective than excavation or other fieldwork. Museum collections need constant reworking to ensure that material is reassessed and where appropriate reclassified in the light of recent fieldwork. Skilled identification of any artefact type of any period can only derive from such research. Some of this work can be very low cost and on-going (such as the work of the South West Implement Petrology Committee); other programmes can be more intensely dedicated to artefactual or ecofactual assemblages or involve the reinterpretation of previous fieldwork. The insights which have come from quite brief re-assessments of the pottery archives from Maen Castle and Gurnards Head (in West Penwith), for example, have identified very much longer sequences from these sites

than would have been predicted from their characterisation as 'cliff castles' or were recognised by the original excavators (Nowakowski and Quinnell 2011, 329-30, 373-4).

Museums contain not only collections of chance finds but also some large excavation archives that have never been published. The publication project on the 1971 excavations at East Porth, Samson (Neal forthcoming a) shows that it is possible to revive and reinterpret these old excavation projects but it is a challenge to find funding for assessment, analysis and publication.

Research Aim 9: Improve knowledge and study of all relevant museum collections and archives.

1. Many collections are often catalogued under very general classifications because of lack of skilled identification. Important diagnostic artefacts, such as post-Roman imports or post-medieval coarsewares, may lie unrecognised. Similarly many finds made on sites primarily of a different period are not recognised for their importance as part of an overall pattern of finds.
2. As well as the excavation archives in museums there are also extensive artefact collections that deserve study; recent work on quernstones (Shaffrey 2006) shows the potential for this kind of study.
3. Study of lithic and faunal remains assemblages from excavated sites.

Research Aim 10: Improve access to, and synthesis of 'grey literature'.

OASIS, the online access to archaeological investigations, and the Cornwall and Scilly HER provide vital indices and portals to the growing amount of archaeological information but this is biased towards information generated by the planning process. Mechanisms need to be agreed to access the growing volume of 'grey literature' that is accumulated by colleges, universities, museums and others and to signpost new and ongoing projects in Scilly

Research Aim 11: Identify and bring to publication key unpublished excavations.

There exists a legacy of important unpublished work from Scilly including:

1. George Bonsor's notes on his work in Scilly between 1899 and 1902.
2. Bryan O'Neil's archive. The Roman-period houses excavated by O'Neil on St Martin's need publication to modern standards.
3. The 1956/60 excavations at East Porth, Tean (Thomas 1960b).
4. The 1971 excavation at East Porth, Samson (Neal forthcoming a).
5. The 1971 excavation at Bar Point, St Mary's (Butcher and Johns forthcoming?).
6. Results of the 1996 Coast Protection Scheme recording at Porth Killier, St Agnes (Ratcliffe *et al* forthcoming).

Artefact Studies

There has been a move away from 'traditional' artefact studies over the past few years which has led to a slowing in the growth of our understanding of this fundamental class of archaeological evidence. There have also been advances in analytical techniques which have shown the potential for improved provenance studies, with their implications for improved understanding of trade and social relations. Most of the effort appears to be concentrated on the development of novel techniques with few resources available to follow this up with large numbers of routine analyses that provide the quantity of data that we need. These techniques could be more widely employed, given better dissemination of their benefits and the availability of appropriate personnel and equipment.

Research Aim 12: Widen our understanding of Scillonian material culture of all periods.

Ceramics (general)

1. A well-illustrated guide (with colour photographs), identifying the main types of pottery (prehistoric to modern) to be found on Scilly would be especially useful (for researchers as well as beachcombers).
2. In the last 15 years a key advance in south-west English pottery studies has been the development of sophisticated chemical characterization of pottery fabrics by Inductively-Coupled Plasma–Atomic Emission Spectroscopy (ICP-AES) and Inductively Coupled Plasma–Mass Spectrometry (ICP-MS) (e.g. Hughes 1998; 2002; 2002–3; 2003; forthcoming). For much of Somerset, and for parts of Devon and Dorset, there is now a database which gives sophisticated fingerprinting of fabrics and aids greatly in more precise interpretation of sources and fabric types. Little published work of this type has been conducted on Scilly or on mainland Cornwall. This kind of analysis, once regarded as too expensive for routine pottery studies, is now comparable in price to thin-sectioning; the two techniques need to be used together, and to be combined with traditional identification of pottery types and forms, to get the best results

Prehistoric and Romano-British Ceramics

1. Compile a list by period of all sites with ceramics referred to in the literature but which have not received full publication. Check what is now held in museums and what appears to be lost. Subsequently develop a project design for publishing material, checking against the above agenda.
2. Given the easy sea access, the possibility of imported vessels occurring at all periods is very real and emphasises the importance of good petrological input into all ceramic research work.
3. The analysis of lipids in ceramics has great potential on Scilly for establishing the proportions of marine resources in diet with any chronological changes.
4. The work of identifying basketry, cordage, etc, from Scillonian ceramics now initiated by M A Owoc should be encouraged with results published with clear illustrations. This provides an unusual opportunity to throw light on organic artefacts which do not survive in most contexts.
5. Publish, with appropriate petrographic studies and illustrations, all the Early Neolithic pottery assemblages from the Islands. There are currently no related radiocarbon dates and, as far as is known, no material associated with these assemblages has suitable dating material. It is of great importance that potential dateable material is looked for among any future assemblages located. Currently the range of forms present is restricted. Study of any future assemblages should pay special attention to forms and decoration to establish whether a Scillonian ceramic identity is evident at this time.
6. There is currently a gap in ceramic sequences which, on mainland data, extends from c 3300 to 2000 BC. It is highly important that any possibilities of future finds of material from this period be followed up and the ceramics studied in detail and dated. The question of Scillonian ceramic identity is again important for this period.
7. For entrance graves the material from Bonsor's excavations now located in the British Museum needs publication supported by petrological analysis. This should establish the full understanding of Trevisker-type material from Porth Hellick which has so far been overlooked, and also possibly indicate whether mainland imports were involved.

8. The new radiocarbon dates bone from the Knackyboy Cairn burial sequence should do much to provide a firm basis for chronology for the Scillonian Bronze Age pottery from entrance graves. Any other opportunities to provide dates for material from entrance graves, cairns or cists should be followed up.
9. Any sequence of types in Scillonian Bronze Age pottery from settlements is currently unclear, largely because the largest and most important site, Nornour, appears to have much material redeposited in structured contexts. Any future opportunities of examining, with supporting dates and petrology, pottery from settlement sites with short phases of occupation will be very important.
10. Unpublished settlements excavated by O'Neil, whether with reputed Scillonian Bronze Age pottery or with that of the 1st millennium BC, need publication with supporting petrology and radiocarbon dates if material is available.
11. Material from the Late Bronze Age and the Early Iron Age is currently sparse on the Islands. Full investigation and publication of any sites found with material of these dates is important.
12. The Middle and Late Iron Ages appear to have assemblages following mainland styles, with Island clays gradually giving way to mainland, gabbroic, fabrics by the end of this period. A more detailed establishment of these changes is important for indications of the Islands' integration with mainland cultural practices. The assemblage from the west side of Nornour excavated by Dudley could be usefully re-examined.
13. For the Roman period any future sites need publication with full petrological work. This will enable better understanding of whether the full suite of gabbroic forms present on the mainland is represented or whether local based cultural preferences were evident. This should also provide better information about the provision of ceramics from beyond Cornwall and from the continent.

Early medieval pottery

1. We need to publish, with appropriate petrographic studies and illustrations, all the early medieval assemblages from the Islands. These ceramic assemblages should also be searched for any internal residues that would also be suitable for radiocarbon dating.
2. Petrographic study and dating of future assemblages is also very important. This will enable better understanding of whether the full suite of vessel forms present on the mainland is represented on the islands or whether local cultural preferences are evident. This should also provide better information about the provision of ceramics from beyond Cornwall and from the continent.
3. Discovery of further early medieval sites would aid in our understanding of the development and sequence of early medieval pottery. Any assemblage that appears to have a combination of imported and native wares should be studied in detail and scientifically dated.
4. It needs to be determined if pottery production actually occurred within the Islands during the early medieval period. This is important, certainly with respect to the adoption of grass-marking, which may have originated in Scilly.
5. Publication of the East Porth, Tean, site (Thomas 1960b) is crucial to furthering our understanding of the development of early-medieval ceramics (especially the introduction of grass-marking) and the interaction between native and imported wares. This has significance not just for the early medieval period within the Islands but is critical for helping to elucidate the situation occurring in mainland Cornwall (see Research Aim 11).
6. The excavation at Mays Hill, St Martins (O'Neil nd d), needs to be revisited and published in full. Recent finds have indicated that the site may be of much

greater extent than originally thought. With foreign imports of Mediterranean ware and both D and E wares, and its situation overlooking the potential harbour of Nornour Sound, further field survey and excavation is recommended to explore the full potential of this site (see Research Aim 42).

7. The occurrence of mainland forms of pottery in a granitic fabric is often taken as a pointer towards local manufacture. However, this has never been fully tested petrographically. Though ceramics found on the mainland are predominantly in a gabbroic and mixed gabbroic fabric, some granitic does occasionally occur. What the petrography needs to determine is, were the granitic wares found on Scilly manufactured out of local granitic clays, or have the vessels been imported from granitic sources on the mainland?
8. A further complicating factor is that recent work on material from Gwithian has shown that raw, unfired gabbroic clay was shipped out of the Lizard area to be manufactured into pots elsewhere, at times being mixed with local clays or filler. Does this explain the gabbroic vessels found on Scilly? Or were these actually imported as complete vessels from the mainland. Petrological examination of the inclusions with the pots may help to answer this.

Medieval and post-medieval ceramics

During the medieval and post-medieval periods the Isles of Scilly were not, as far as is known, producers of ceramics, but a peripheral market for potters making and selling their wares in west Cornwall and beyond. Progress in understanding the pottery of the islands is inseparable from that of west Cornwall. Although contexts on the islands will have a part (sometimes an important one) to play in building up an overall picture, progress needs to be made with the bigger picture if we are to get further in understanding the pottery of Scilly.

1. How does the overall pattern of pottery consumption in the medieval and post-medieval periods compare with that from mainland Cornwall, and with the ceramics of collections from other islands in the English Channel and Bristol Channel?
2. Since the 1960s detailed petrological examination, leading to the accurate identification of pottery types and sources, has been the foundation of progress in medieval and later pottery studies in many other parts of Britain. No pottery from Scilly of these periods has been the subject of this kind of study. Although hand-sorting of sherds and identification of fabrics solely in hand specimen can go some way towards characterizing the Scilly collections, analyses now need to be based on a more precise footing. Petrological study – either by means of thin-sectioning in the manner now traditional amongst archaeologists, or by identification of hand specimens in the manner developed so successfully elsewhere in south-west England by Dr Roger Taylor (e.g. Taylor 2002; 2003; 2008) – is fundamental to progress. A programme comparing samples from the islands with kiln material on the mainland, such as that from Mawgan-in-Meneage, St Germans and Lostwithiel, is much needed. The medieval pottery may prove to be more receptive to analysis of this type than post-medieval, but even post-medieval coarsewares of the sort commonplace in early modern Cornwall have research potential in this field.
3. Reference collections are widely seen as valuable aids to identification, both by specialist researchers and by members of the wider public; many archaeological units, museums, independent researchers and university departments hold such collections. In the case of Scilly, such a tool would be especially useful to the wider public. The possibility of building a resource which could be accessed in the two museums which hold major collections from the islands (IOSM and RCM) should be explored. This might make a project suitable for external funding. The question of holding a reference collection of thin-sections for Scilly and for

the rest of Cornwall should also be considered; at present the only South West collection with Cornish material is held at Exeter Museum.

4. Understanding of chronology is limited. Charles Thomas' pioneering work on the post-Roman pottery for the Scillies was a fine achievement, but the later medieval part of the sequence was poorly dated, and relied principally on general understanding of the picture of medieval ceramics emerging in mainland England. Decades later, this problem still obtains; dating is based largely on evidence from far away, such as Launceston Castle, Exeter, Plymouth and Bristol. Fundamental uncertainties include: the date at which bar lug pottery is superseded by medieval Cornish micaceous cooking pots or jars; the date when wheel-thrown vessels were generally adopted in the later Middle Ages; the period when jugs came into use; the date when bowls came into use.
5. Some uncertainties in site dating may be resolved by evidence from sites outside the region where better conditions survive – a point illustrated by the discovery of Cornish bar lug pottery from waterlogged contexts in Waterford, Ireland, in contexts dated by dendrochronological evidence to the end of the eleventh century and early twelfth centuries. Nevertheless, more local evidence is essential to make progress.
6. Thought should be given to the question of whether a programme of radiocarbon dating of residues from carefully chosen vessels, both on the islands and the mainland, would make progress with this question. This, however, is unlikely to resolve the problems, for example, of distinguishing pre-Conquest from twelfth century material, since fluctuations in atmosphere will probably produce inseparable results for these two periods (J Meadows, pers comm to J Allan).
7. In view of the high research potential of ceramics from the wrecks around Scilly (arguably far exceeding that of the Islands' landward sites, especially for the post-medieval period), the chaotic state of artefact recovery, conservation, study and ownership which has characterized such sites in the past, and continues to do so to some extent, should be a matter of great concern. The fact that it is at present very difficult to find any solid information about the overall volume and research value of the ceramics recovered from wrecks around Scilly is a clear indication that the situation is unsatisfactory. This is, of course, a large and complex problem; the strong likelihood of the loss of valuable information in the last generation and the potential value of future finds are emphasised here.
8. The existing publications relating to the medieval and later pottery of the islands hardly serve the subject: the report on the principal medieval collection (Dunning 1965) is now 45 years old; the sole attempt at a general survey (Allan 1993) is quite brief; more recent work is buried in grey literature and some finds have escaped any form of publication. Publication of key sites, a priority highlighted in the Mellor report (1994), remains an important goal; in this case the newly-discovered medieval wreck in Tresco Channel, and re-publication of the medieval material from St Helen's, are the most pressing cases. A fresh general review would be very desirable, but it needs to be based on fresh analytical work.
9. One of the stated aims of the Scilly research framework is to '*encourage a more active role amongst visitors and residents by putting the historic environment to the fore as a visitor attraction and thereby enhancing the quality of visitors' experience*'. It also seeks to '*enhance opportunities for intellectual access to this rich resource by the islands' community and by the broader visiting and academic communities*'. In the field of medieval and later finds the local museum with its engagement in the community offers important opportunities to advance these aims. In the case of Scilly, the IOSM currently has an active role in building up ceramics collections – particularly because a striking feature

of the medieval and later pottery of the islands is the extraordinary amount of material recovered by beachcombers, much of which we may presume is never seen by an archaeologist. The IOSM has an admirable policy of encouraging finders of this kind of material to show and sometimes display their finds at the museum, and has taken advantage of visiting specialists to build up an instructive display of the common and exotic wares found in this way. This practice has brought some significant finds (e.g. the possible medieval wreck from Porthcressa) to the fore (see Research Aim 4).

10. Consideration should be given to the way in which the results of this work find their way onto the Scilly HER. Since it would not be feasible to retain the masses of industrial pottery of the last 250 years, development of a collection and retention of the most significant material can only be undertaken if they are based on a good working knowledge of ceramics.
11. Cornish medieval and later coarsewares form the bulk of the collection on medieval and later sites on Scilly. A programme of petrological and chemical study in which the finds from the islands are examined as part of a wider programme with material from the mainland is needed; in Cornwall work in this field lags behind other parts of the south-west.
12. Imported ceramics are an exciting aspect of the island assemblages, including as they do various sorts of ceramics which are unusual throughout the British Isles. The publication of a report drawing together, analysing, discussing and illustrating these finds is a highly desirable and achievable goal.
13. E ware has been identified on a number of sites on Scilly, and is well known to pottery researchers and excavators in Cornwall. Many of these identifications are probably secure, but in instances where later medieval occupation overlies post-Roman sites, for example at Hillside Farm, Bryher 1999 (Quinnell 2002-3), and East Porth, Tean (Thomas 1960), the complicating problem arises that some of the material previously identified as E ware may really be Normandy Gritty ware of the twelfth to fifteenth centuries. The latter material may reasonably be expected on Scilly; it is the most common coarseware on the Channel Isles. In view of the high academic interest in E ware, this problem deserves exploration. Since quartz inclusions are common, chemical analysis probably represents the best chance of resolving this problem. Chemical examination of material of related type from Padstow, *Hamwic* (Southampton), Exeter and elsewhere provides an initial database which could be built up by fresh analyses (Hughes 2002-3).
14. In its current national review of the state of ceramic studies, which highlighted many areas of concern about the state of the discipline, the *Research Framework for Post-Roman Ceramics* (2011) outlined the need for a fresh Statement of Best Practice. This document does not yet exist but is promised soon. It will provide archaeologists engaged in the planning process with guidance about national standards for reporting medieval and later ceramics from commercial sites. Adoption of its standards throughout the country should make a significant difference to the quality of pottery studies throughout England.

Lithics

1. The unprovenanced nature of much of the IOSM lithics archive means that more detailed study would only be of limited value. However, there are assemblages held at the RCM from excavations such as Halangy, Knackyboy and Little Bay, which have not been examined in any detail or published (see Research Aim 9). These would benefit from full analysis, adding to our knowledge of the sites, and would also provide an opportunity to examine full working lithic assemblages. The information that could be gleaned from the examination of assemblages containing a full range of debitage and tools would add significantly to our

knowledge of the prehistory of the Islands. Debitage, the waste material produced during tool manufacture, will provide information about the nature of knapping technologies and has the potential to clarify the typological dating of particular tool types.

2. Aside from the examination of excavated lithic assemblages, there are a number of known findspots which could be systematically investigated in order to recover complete *in situ* assemblages. At Old Quay on St Martin's, lithics have been recovered from a possible buried land surface that is eroding from the cliff edge. A further scatter of lithics has been recovered from a garden on the south side of the island, occupying a discrete area; this has produced a small assemblage of material including two scrapers. Both assemblages would benefit from assessment, perhaps using a test pitting strategy to determine the extent and nature of the *in situ* material (See Research Aim 8) Fieldwalking in available fields could also be undertaken to identify further scatters and determine their distribution within the landscape (see Research Aim 5).

Stonework

1. Stone artefacts are especially common from Scillonian settlements of all periods but have received little detailed study and, until the last few decades, all but the most obvious artefacts were probably not recognised. Querns, for instance, continued to be used on Scilly until comparatively recently and many of the rotary quernstones to be seen on the islands are probably, therefore, post-medieval/modern in date.
2. The long-term curation of large stone artefacts, such as querns, from excavations is an issue that needs to be addressed. It has generally been the practise to incorporate such stones into ornamental features on the island on which they were found. The main problem with storing querns is their size and weight. Inside, smaller fragments can be stored in boxes. Large fragments and complete stones should be placed on low shelves, preferably slatted, not on the floor where they are at risk of being knocked and are also more difficult to move. Outside, querns should ideally be stood on stone or concrete, or preferably on gravel and kept free of vegetation; complete rotary quernstones can be leant against a wall. Stones kept on grass or earth are in danger of becoming overgrown, suffer from staining where they are bedded in the ground and are also subject to eventual damage from water penetration. The general problem with storage outside, however, is that the surfaces will become weathered. Also, the dished grinding surfaces of saddle querns if kept upright may tend to collect water. This is generally the most stable and safest way to stand them, however.
3. One of the overlooked classes of stone in Scilly is pumice objects, of which Katharine Sawyer has located five during her research. These are the only examples known in England and deserve more detailed study.

Research Aim 13: Use innovative techniques and methodologies to ask sophisticated questions of post-medieval to modern artefacts and buildings.

1. There is a much work still to be done at the basic typological level. It has been demonstrated that a low level of resources continuously applied to, for example, pottery studies can achieve a great deal. Such an approach should not be lost among demands for resources for larger scale programmes.
2. At a higher level the value of the recording and study of artefacts in context has been demonstrated but rarely applied. Locations and assemblages should be identified for specific study to address issues such as identity. Where themed issues are being addressed opportunities should be identified of applying these techniques as well as recording structures.

3. Chemical characterisation of pottery fabrics by ICP-AES and ICP-MS has not been done for Scilly and would be good step forward, as would increased petrological analysis (see above Research Aim 12).
4. Lipid residue analysis, particularly on Neolithic ceramics and Bronze Age cremation vessels to understand their use prior to burial.
5. Stable isotope analysis of human and animal bone to place Scilly in context with research being carried out on other island groups.
6. Genetic and morphometric analysis of faunas to look at the effects of island isolation,

10.2.2 Science

The routine application of archaeological science can bring great benefits, particularly in the areas of chronology and past environments. These are issues where the study of the past has a direct relevance to modern issues such as climate change.

Dating

Many areas of research are hampered by the lack of the detailed and accurate chronologies that should be available with modern techniques. More radiocarbon and other scientific dates are required on well-contexted samples, or internal pottery residues, where the date obtained will accurately reflect the archaeological event. Existing dates need to be re-evaluated by a stringent examination of the taphonomy, composition and final contexts and associations of the samples on which they were measured. This should include the collation of radiocarbon determinations available from watching briefs, evaluations, excavations and environmental recording projects, many of which are unpublished, exist in 'grey literature', or in geological or geographical publications. The example of the (re)dating programme of the Early Neolithic enclosures of Southern Britain and Ireland (Whittle *et al* 2011) shows what can be achieved by the combination of rigorous sample selection and Bayesian modelling of the results. Targeted keyhole excavation could provide an efficient technique for obtaining dating and environmental samples.

Research Aim 14: Increase the use and improve the targeting of scientific dating.

1. The expanded application of recently developed and/or modified dating techniques, principally optically stimulated luminescence (OSL) and amino acid ratio (AAR) to open-landscape deposits. Recent research for the Lyonesse project has indicated that OSL dating is particularly effective on sand lenses in peat deposits (Roberts forthcoming). Use of these techniques will aid contextualisation of Scilly's terrestrial, intertidal and subtidal palaeoenvironmental deposits.
2. Scientific dating for the recent Lyonesse Project almost doubled the previously existing radiocarbon measurements for Scilly. There is a need for more radiocarbon dates from excavated sites to provide a better definition of key transitional phases (such as the beginning of the Neolithic, the Neolithic/Beaker/Early Bronze Age transition, and the change from the Earlier to the Later Iron Age).
3. A suite of radiocarbon determinations from the remaining baulk at the east end of the settlement at Nornour might provide secure dates for the earliest phases of settlement there. The baulk is being eroded by the sea and this is considered a priority.
4. The Late Bronze Age is poorly defined chronologically for several reasons. Burials with accompanying grave goods are very rare, in contrast to the situation in the Early and Middle Bronze Age, perhaps because excarnation was practised increasingly frequently. Pottery styles become less distinctive, and

pottery use may have been less common. There is a lack of radiocarbon dates and a lack of a systematic collation of those that do exist for this period.

5. In the medieval and post-medieval periods diagnostic material culture becomes more commonplace but there is a need to link scientific dating techniques to documented medieval sites such as Ennor Castle and Tresco Priory.

Past environments

As well as providing information on the conditions in which people lived in the past and their relationships with nature, environmental archaeology has a valuable part to play in one of the great debates of our time: the evidence for environmental change and the likely impacts of global warming.

The Isles of Scilly contain wide expanses of shallow subtidal and intertidal environments flooded by rising relative sea levels during the late Holocene. It has long been known that the islands in their current form are a result of past marine transgressions that flooded early sites. The archipelago is therefore a valuable laboratory for studying continual sea level rises within an historical context.

Research Aim 15: Improve the quality and quantity of environmental data and our understanding of what they represent.

1. We need to improve consistency in sampling, assessment and analysis for all types of palaeoenvironmental evidence.
2. A range of context types should be sampled for plant macrofossils. For example, sampling only obviously rich deposits misses evidence for crop processing and leads to misinterpretation of site function and plant use.
3. We should maximise sample size by targeting areas where preservation of animal bones (including micro vertebrates) is good. However, this needs to be balanced to make sure that context related variation is also understood (Serjeantson forthcoming).
4. We should look at the environmental evidence that exists in new ways, such as by conceptualising what we would expect to find under different scenarios and then interrogating the archaeological record. This approach could particularly lend itself to a new understanding of past farming.

Research Aim 16: Target specific soil and sediment contexts for environmental information, including a focus on sand deposits and the preservative qualities of midden deposits.

1. Targeted use should be made of pollen analysis to investigate particular archaeological questions or gaps in knowledge and not just carried out on long sequences "because they are there". Examples include the Mesolithic to Neolithic transition; the timing and duration of Neolithic and Bronze Age clearance and reforestation; the development of heathland and the immediate post-Roman/early medieval period. High resolution dating strategies will be needed to allow detailed interpretation and not restricted to top, middle and base of sequences unless judged to be appropriate.
2. Little is known about when, how and where soils were artificially improved in the past. Are there temporal trends in soil improvement? Micromorphological studies can begin to address these questions and carbon isotope and geochemical studies can also be used in some circumstances. Scilly, being an archipelago, should be particularly amenable to this type of study because of extensive use of seaweed and bracken as animal litter, subsequently composted and used as manure or soil dressing.
3. Colluvial and alluvial sequences as markers for forest clearance and agricultural intensification need to be exploited. In order to do this both types of stratigraphy need to be investigated in more detail than at present and much

better dated, rather than being written off as archaeological and palaeoenvironmentally sterile. Magnetic and geochemical techniques can be used to source such deposits and suggest why deposition occurred, while OSL dating is very useful for dating inorganic sediments if they are of suitable type.

Research Aim 17: Improve our understanding of insect faunas and what they can tell us about past environments.

The following specific targets for insect studies are based on the SWARF Research Agenda (Webster (eds) 2010, 284-5), taken from Robinson (2002), but the opportunities to address them are limited to wet or waterlogged deposits.

1. Insect faunas where conditions are most Atlantic.
2. Carbon and oxygen isotope measurements on insect faunas from sequences which suggest climate change, to give direct measurements for dating and temperature.
3. Insect assemblages that can be closely related to the elm decline.
4. Early–Middle Bronze Age insect faunas.
5. Insects from Iron Age cliff castles and coastal settlements in relation to aspects of the synanthropic insect fauna.
6. Post-Roman/early medieval insect faunas.
7. Medieval insect faunas.
8. Insect faunas from Hugh Town.
9. Comparative studies of assemblages from modern graveyards which can be related to the surrounding habitats from which they were derived.
10. The development of improved techniques of data analysis to cover more aspects of the fauna.

Research Aim 18: Continue to collect evidence for past climate change and sea level changes together with their effects on peoples' relationships with landscapes and the sea.

1. Establish a database of sites threatened by coastal erosion and a co-ordinated coastal monitoring programme (see Research Aim 4).
2. Opportunities should be taken to further understand the scale and nature of sea level change throughout Scilly. This will involve multi disciplinary biostratigraphic analyses and high resolution dating programmes.
3. The probable continuation of Mesolithic archaeology beyond the present coastline highlights the need for topographic modelling, deposit and site prediction, and palaeoenvironmental reconstructions to be extended below the current tidal limits to improve understanding of the landscapes occupied by Mesolithic populations.
4. The submerged forests and intertidal peat bed and organic soil resources of Scilly are an endangered resource, with widespread evidence for their ongoing erosion. These locations contain well preserved proxy data for prehistoric and later environments that have only rarely been studied in south-west England. It is important that the remaining resources continue to be studied in detail before they are destroyed.
5. In light of the importance of Mesolithic coastal strategies (as indicated by key midden sites such as Westward Ho! Devon (Balaam *et al* 1987), the extant terrestrial resource should be integrated with the marine resource (such as submerged forest landscapes and artefact/ecofact material. Particular focus

should also be given to the palaeoenvironmental evidence for possible coastal management during the Mesolithic (such as reed beds management).

Research Aim 19: Improve our understanding of Palaeolithic and Mesolithic landscapes (landscapes and seascapes).

Scilly provides an opportunity to study the Mesolithic/Neolithic transition, for example at Old Town Quay and Par Beach, St Martin's, and in the submerged and coastal peat deposits where there may be relevant preserved stratified artefactual or ecofactual material. An example is the calf's tooth from the peat on Par Beach, which has been radiocarbon dated by English Heritage's scientific dating team.

10.2.3 Settlement

Changing patterns of land-use and settlement form a key component of any study of the past. The size of the resource means that innovative techniques will be needed to study it at an appropriate scale. There is also a need to recognise activity that took place off traditional 'sites', including the locations of boundaries and also understand the locational forces that produce settlement patterns in different periods.

Hugh Town on St Mary's is Scilly's only town. The town developed after the building of Star Castle in 1593, but here has been settlement in the area of what is now Hugh Town from at least the Bronze Age. There is potential in Hugh Town, and in the Islands' smaller settlements, for concentrations of buried deposits containing well-stratified artefacts and often well-preserved environmental evidence.

Although the buildings of Scilly have been studied and written about more than many other parts of the British Isles there is much more to be done that is in accordance with the very special interest of the archipelago as a community with a very distinctive character. Each building type is worthy of further recording and investigation. This would best be carried out as a phased programme over several years with as much community involvement as possible. Better understanding and presentation of the special character of the buildings of Scilly would be good for its economy as well as for the conservation of its buildings.

A particular aspect of the present heritage protection situation in Scilly is that whilst the Listing process has been interpreted in a flexible way with respect to some of the buildings there are still gaps in the coverage with respect to the rarer building types. For example, it is a serious omission that no gig sheds are individually listed, except for the ruin on Samson that is protected within the Scheduled area. Listing criteria need to be applied consistently but always in Scilly with its unique context as a major consideration. Conservation Area status for all the islands has enabled considerable enhancement of many of its buildings through national and local funding schemes in recent years. Improvements have included replacement of inappropriate windows and the reinstatement of scantle slate roofs. This work is a credit to those concerned and has changed the perception of what the buildings represent. One result of this is that some buildings that might have appeared marginal for listing now look better than some of those that are already listed.

Certain key points of recommendation are as follows:

1. All building types deserve further recording and investigation
2. Documentary sources should be further consulted to unravel some of the finer details about island life of the past and with respect to the buildings that are involved
3. Enhancement schemes should be encouraged and supported
4. New-build opportunities should be assessed very carefully to ensure that the special architectural character of the islands is not compromised.

Research Aim 20: Improve our understanding of prehistoric and Romano-British settlements, monuments and landscapes.

1. Ceremonial landscapes – we need to reassess the Early Bronze Age monuments in their landscapes and detailed survey needed of the two or more stone rows recorded on the north end of Tresco.
2. The fogou on Peninnis Head, discovered in 2001, is an important and unique addition to Scilly's range of later prehistoric/Romano-British monuments and requires a detailed survey.
3. Structured deposition – structured deposition and 'middening' (the ritualistic re-working and re-deposition of midden deposits) have scarcely been considered in regard to prehistoric settlement in Scilly and would be rewarding subjects for future work.
4. Longevity and change
5. Vernacular styles
6. Coastal settlement – we need to investigate the inland extent of cliff-exposure sites.
7. Changing coastline
8. Field systems - Scilly's prehistoric field systems are undated and it is analogy with mainland systems that leads to their provisional attribution to the Middle Bronze Age or Iron Age and Romano-British period. The results of the Lyonesse Project suggest that that the intertidal field systems are Early Bronze Age.

Research Aim 21: Improve our understanding of early medieval settlements, religious buildings, monuments and landscapes.

1. Our knowledge of early medieval settlement in Scilly is based on the excavations carried out in the mid-twentieth century at small ecclesiastical sites, or hermitages: St Helen's (O'Neil 1964); Tean (Thomas 1960b) and (probably) East Porth, Samson (Neal forthcoming a). We need to learn more about secular life in Scilly during this period.
2. This is not to say that ecclesiastical sites are unimportant. The unpublished excavations at East Porth, Tean and East Porth, Samson, are crucial to understanding the introduction of Christianity into the Islands and also the furthering our understanding of the development of early-medieval ceramics (see Research Aim 11).

Research Aim 22: Improve our understanding of medieval and later settlements, buildings and landscapes.

1. Prioritise a systematic recording strategy for the built environment and improve the recording and utilisation of archaeological collections and other information sources. Recording buildings should embrace recording evidence and analysis of current and earlier active use of space. There needs to be a greater understanding of different kinds of structure and the detail to be recorded. There is considerable potential for documentary research, oral history, etc, to aid interpretation from physical remains. We need to improve our understanding of settlement at Old Town, St Mary's, and around St Mary's church.
2. We need to improve our understanding of the history of settlement on the off islands.
3. We need to undertake analysis of evidence for medieval field systems and study of fields associated with farms of known medieval date or having names of Cornish origin.
4. How do we reconcile the coastal place-name evidence used by Thomas (1985) to support his model for sea level rise with the current environmental data from the Lyonesse Project?
5. We need to improve our understanding of the development of Hugh Town.

6. We need to learn more about the impact of Augustus Smith's administration on landholding, the re-shaping of farms and creation of new boundaries and other aspects of the historic environment such as the 're-building' of Hugh Town from about the 1830s, for example, but apart from a couple of lines in Matthews (1960) the process is not documented.
7. Some of the most important domestic buildings in Scilly have already been assessed in detail but many others have only received the most limited study, some of this as a result of the Listing process, or none. The architecture and methods of construction of vernacular buildings should be the subject of further research.
8. Grouping of traditional housing clearly has many causes and effects, particularly with respect to the culture and living conditions of the islanders of Scilly. Research needs to be carried out into the way that groupings have come about, their distribution, and their particular character. For example, to what extent have the settlements evolved in a piecemeal way and to what extent have others been planned? The management of the islands since Augustus Smith became Lord Proprietor is clearly a strong factor but this needs to be better understood and the extent of his influence needs to be identified and described.
9. Town houses deserve attention as a separate group. The story of their builders, architects and occupants is more likely to be unearthed than studies of the more modest building types. However, this can only be achieved by determined research. Results of such a study together with the recording and analysis of buildings is likely to yield invaluable results that are important to the story of Scilly.
10. A much better understanding of town houses with shops is possible with detailed research that includes reference to trade directories and other documentation of the commercial activity on the islands.
11. A special study of the plan, type, date evolution and distribution of the traditional buildings in Scilly would enable a much better understanding of the way that they have evolved and were used. This study would need strong community involvement and permissions for access. Exemplar types should be surveyed by professionals/experts but much useful recording and analysis could be achieved by enthusiastic amateurs under the supervision of a central organisation or group.
12. Study of the smaller houses of Scilly may best be achieved as a thematic exercise so that the buildings get the more intensive assessment that they deserve. Their similarity to other small buildings in Ireland, Scotland, Wales, and elsewhere, needs to be better understood and comparisons should be made taking into account all the factors involved in the development of the tradition for these simple but evocative buildings.
13. The way that rows of cottages/houses have evolved needs to be recorded as a stylistic group. Much can be learned about the sequence of build by studying the quoin-work that usually survives.
14. The history and of the small nineteenth century schools that have played an important part in the development of Island society should also be studied.
15. Compilation of a database of known inscribed and dated stones + record and analysis of graffiti inside Cromwell's Castle.
16. We need to carry out a study of the history, fabric and distribution of known wells in Scilly.
17. More systematic studies of vernacular architecture as applied to both housing and other rural buildings are required, particularly at the humbler end of the scale.

10.2.4 Maritime

Scilly is an archipelago. As well as providing a valuable food resource, the sea was vital for communications, bringing Scilly into contact with Wales, Ireland, Brittany and, later, Africa, America and the rest of the world.

There is a complete lack of any boat remains from Scilly dating from before the early sixteenth century. This perhaps reflects the scarcity of remains from mainland Britain as a whole. The situation in Scilly is probably exacerbated by the effects of sea level rise which has caused large changes in the coastline.

We know that prehistoric and later people made journeys by boat to Scilly. What we do not know is what type of boats they made the journey in, nor how often. Any traces, however fragmentary, of early boats found in Scilly should be treated as of international significance (until or unless proven otherwise). Detailed study of ancient coastlines should help us to define areas of the seabed which are most likely to yield evidence of early boats and landing places, about which we know very little.

Trade and seafaring in Scilly can be charted by the presence of artefacts (mainly ceramics) which have originated outside the islands, for example prehistoric and Romano-British gabbroic pottery, early medieval Mediterranean and Gallic wares, the assemblage of imported medieval ceramics recently found in Tresco Channel and the *Little Gannick* wreck, which comprises a discrete mound of post-1850 Cornish mining equipment. The cargo of national significance because of its rarity and potential for informing use about the international trade in Cornish mining equipment and technology.

The archaeology and history of fishing in Scilly cross-cuts the maritime/land divide but has received comparatively little attention. As well as the strictly maritime resource there is also a considerable intertidal resource. Onshore assemblages of structures, artefacts and fish-bones, and isotopic studies of human skeletal remains, also need to be integrated into any understanding of fishing and its importance.

Research Aim 23: Increase our knowledge of maritime archaeological sites.

1. There is a considerable body of documentary evidence for early shipwrecks that has yet to be researched.
2. Given the maritime nature of Scilly, with the occurrence of many foreign imports emphasising external contacts during the early medieval and medieval periods (as well as maintaining contact with the Cornish mainland); the potential for possible shipwrecks and/or wreck cargoes, of these periods is high.
3. We need to carry out further research on piracy and privateering in Scilly in the sixteenth and seventeenth centuries.
4. Due to its relatively sheltered position and ease of access, the protected wreck site of *HMS Colossus* is an ideal platform for developing systems and experimental underwater techniques. The site has already been used in experimental stabilisation trials commissioned by English Heritage to determine the most effective method of stabilising the exposed wreckage on the seabed (Camidge 2005; 2009). Further work has begun on studying the mobility and deterioration of artefacts situated on the seabed of this site (Camidge 2010). This is particularly important as diver access to the site is being actively encouraged by means of the diver information trail on the site. Some work has also been done on artefact reburial on this site, and hopefully this can be developed into a long-term trial of *in situ* reburial of artefacts from underwater sites.
5. A historical study of each lighthouse is required (other than Bishop Rock which has its own recent publication, Stanbrook 2008).
6. Study of the history of salvage and diving in Scilly.

7. The high-profile salvage work undertaken on some of the Scilly wrecks needs to be properly documented during the lifetime of those who undertook the work and a record made any artefacts that appear for sale on the open market.
8. The presence in Scilly of a number of thriving dive charter businesses could be used to archaeological advantage. The three charter skippers already administer the dive trail on the protected wreck site of *HMS Colossus*; the divers might be encouraged to undertake useful tasks. These could include systematic monitoring of visited wrecks for (inevitable) deterioration, or even actively searching new areas of the seabed.
9. There is a need for a holistic interpretation of the historic and natural marine world around Scilly.

Research Aim 24: Improve our understanding of how the waters around the islands have been used over time.

1. Currents
2. Navigation routes
3. Anchorages

Research Aim 25: Assess the information for early ports, harbours and landing places.

1. Landing places and safe harbours have always been of the utmost importance in the day to day life of the islanders and, as Robinson (2007, 79) points out, they are also deeply symbolic, marking the transition between land and sea. Despite the obvious importance of the sea to Scilly, very few of these sites have been studied and there is a need for a more comprehensive study of the early ports, harbours and landing places of the archipelago.
2. We need to assess the evidence for a harbour for Roman Scilly as at the location suggested by Thomas (1985) and also to investigate the possible harbour at the south end of Arthur recorded in the 1960s.
3. Harbour walls deserve a special study, both of surviving walls and of archive photographs of walls that can no longer be seen. They should also be compared to harbour walls on the mainland. The walls on Scilly are an important part of the character of the Islands. The listing status of the main quay should be re-assessed.

10.2.5 Production and trade

Industry and Technology

We need to improve our knowledge of industry and technology in Scilly, including tinworking, stonecutting, shipbuilding and the early development of the kelp burning industry.

Research Aim 26: Widen our understanding of technology and industry in Scilly.

1. We need to encourage further study for evidence of salt making, tinworking, quarrying, stonecutting, shipbuilding and the early development and subsequent history of the kelp burning industry.
2. A detailed survey is required of the tinworking features at the north end of Tresco – openwork, lodeback pits, reservoir etc + assessment of methods of working/water storage.
3. A detailed study should be made of the distribution of known stonecutting quarries and main areas of surface work. Distribution of known wedgecut stones (i.e. pre-c.1800).

4. Industrial buildings in Scilly are an interest group that still requires considerable study and research. The buildings that were used for industry need to be identified and recorded and research targeted at their origins and their functions. We need to undertake analysis of structures associated with the flower industry.

Food procurement

Food production is central to human existence, from the earliest periods of hunting and gathering, through the development of agriculture and animal husbandry to the predominantly farming-derived landscape and associated infrastructure that we see today. While the overall picture is moderately well understood there are specific periods, places and processes that need more work. For example, middens as evidence of gathering; red deer remains possibly indicating early hunting. Field systems of different periods may reflect different types of, or changing emphases within, agriculture, shifts in technology, etc'

Research Aim 27: Improve our understanding of the use of wild and domestic animals in the past.

A series of questions regarding the faunal data from the islands need to be further addressed. Part of this can be undertaken via a review and re-analysis of the resource itself, for instance Frank Turk's work on Nornour; however, there is also the need for new excavations to obtain new data.

1. Is there evidence for endemic populations of terrestrial fauna?
2. What wild species were present on the islands during early prehistory? What do we know of the island histories for wild species such as the Scilly Shrew, Pallas Vole, toad etc?
3. When were domesticates introduced to the islands? Where were they introduced from? What effect, if any did they have on endemic fauna?
4. How do the species exploited change over time?
5. How were the herds of food animals maintained and managed? What strategies were employed to maintain herds' health, security and productivity on these limited land masses? Is there any evidence for foddering or byring of these animals or feeding them on seaweed?
6. How did these species respond to the insular environment in terms of size and health? This can be linked with analysis of lipids in pottery fabric.
7. When was milk first produced on the islands? Were there specialist faunal economies?
8. Were the first cats domesticates or introduced wild cats? Are the small dogs mentioned by Turk dogs or foxes? When did dogs and cats first breed on the islands?
9. When was the domestic fowl introduced?
10. When were red and roe deer imported to the islands? Were there breeding populations? Are there morphometrical changes associated with these insular populations?
11. Is there evidence for the failed introduction of other species?
12. What evidence is there for the social or symbolic role of animals?
13. How do stable isotopic values of animals and humans change over time?
14. Need to investigate treatment and disposal of animal remains within houses.
- 15.

Research Aim 28: Improve our understanding of the exploitation of marine resources in the past.

1. Which methods of fishing were used? How were fish processed?
2. What contribution did marine mammal resources make to the diet? Is there evidence for persistence of marine foods throughout prehistory?
3. Which seal colonies were targeted? Excavations at Nornour and at Porth Killier and Higher Town, St Agnes have provided rare evidence for exploitation of seals in the Bronze Age deserving further study.
4. Were cetaceans hunted, driven ashore or stranded?
5. Which sea bird colonies were exploited? We know, for example, from medieval documentary evidence that the rent for the islands was at one time given as a number of puffins to be paid and there is also a reference to the export of salted puffins from Scilly to the West Indies in the late seventeenth century.
6. Why are there no mussels on Scilly?
7. Were there oysters?
8. Prawns are very abundant on the Flats but were they exploited?
9. Was edible seaweed exploited?

Research Aim 29: Improve our understanding of the use of wild, cultivated and domesticated plants in the past.

1. We need to be open to the possibilities of local distinctiveness in the contribution of unusual or infrequently cultivated plants. Our understanding of plant cultivation in the past is based on a small range of species, largely because of the processes responsible for preservation in non-waterlogged conditions. Thirsk (1997) gives some indication of the possibilities for the historic period.
2. Evidence from pollen, insects and plant macrofossils needs to be integrated to provide information on the historic management of pasture. Did meadows / hay production play a role in Scillonian agriculture or was there more reliance on rough ground grazing? Evidence from waterlogged deposits which provide information on this important aspect of farming should be a high priority for all periods as the information is of use both to archaeologists and to the nature conservation sector.
3. The evidence of grain/plant impressions on ceramics could also be investigated/considered.

Research Aim 30: Understand better the relationships of early prehistoric people to plants and animals.

1. Further work is needed on the early use of woodland resources and woodland management.
2. The changing role of marine and freshwater resources requires more adequate investigation.
3. Identification and verification of possible fish traps would be very useful. Were they used on Scilly, and in any specific area?
4. Isotopic studies need to be carried out on animal as well as human bone assemblages to understand pasturing practices and trade in domesticated animals.
5. Better understanding is needed of the status of arable in the Neolithic and Early Bronze Age as the debate on the importance of arable versus collection of wild plant resources continues. More assemblages are needed from a range of contexts, particularly associated with domestic rather than ritual activity. All

Neolithic and Early Bronze Age samples are important, but any waterlogged deposits are particularly so as they may preserve material not susceptible to charring. The study of crop waste (weed seeds and chaff) will tell us more about the nature of arable fields and farming practice for all periods and also pick up introductions of crops and weeds as they reach Scilly.

Research Aim 31: Improve our understanding of agricultural intensification and diversification in later prehistory, including establishment of a chronology for prehistoric field systems.

1. There is a need to better understand the chronology and regionality of crop diversification and intensification of production, which appears to take place from around the Middle Bronze Age onwards. Well-dated assemblages from a range of settlement contexts are required to examine introductions of new crops and associated wild species.
2. Further work is required to examine the archaeological evidence of agricultural improvement apart from a few specific examples of landscape.

Research Aim 32: Improve our understanding of the environmental impacts of farming.

1. Our knowledge of plant use especially remains patchy. This extends beyond food; fibres, building materials, adhesives, medicinal herbs and drugs should also be considered.
2. Better understanding is needed of how the process of agricultural intensification can be detected on archaeological sites. Better use of the evidence should be made by integrating environmental and artefactual evidence to test theory, coupled with comprehensive dating programmes. For example, better understanding of the development of field systems during the Bronze Age is particularly important.
3. Later prehistory is often characterised as the domestication of the land, with the appearance of permanent settlements and fields; from wildscape to landscape. The environmental evidence for agriculture, whether charred plant remains or animal ones, remains poorly studied in comparison to structures or ceramics. In this regard archaeological science needs to be taken out of the black box and treated as mainstream.
4. There is a very limited amount of environmental evidence in the medieval period and further work is needed to link sites to the wider landscape and better-dated contexts. This will provide opportunities for understanding what happened at documented historical events in Scilly. Understanding the changing patterns of land use and their environmental impact has yet to be fully realised.

Research Aim 33: Assess the character of food procurement in the Romano-British period.

1. We know little about plant and animal use and cultivation methods in the Romano-British period.
2. Did Scilly's mild climate result in the growth of crops and garden plants that could not flourish elsewhere before the post medieval period?

Research Aim 34: Investigate the origins of the chronology of use of free-threshing wheat.

Despite this being a priority for archaeobotany for many years, when, where and how the change from cultivation of hulled to free-threshing wheats took place is still not understood. This major change which will have affected husbandry and crop-processing practices occurred sometime in the centuries covering the late/post-Roman-early medieval periods. Efforts must be made to target suitable assemblages in Scilly as elsewhere in the South West.

Research Aim 35: Improve our understanding of medieval, post-medieval and modern farming and food production.

1. There is very little direct environmental evidence for the use of grassland and pasture in Scilly. The pastoral side of the landscape was a major land use and vital for producing winter food for stock. However, the types and management of grassland and pasture is very poorly understood. The integration of plant macrofossil and insect evidence and in some cases pollen as well, is the key to success here.
2. Better use should be made of documentary evidence to help interpret plant and animal assemblages. Plant and animal assemblages could also be used to challenge or confirm the accuracy of the documentary record. Monastic accounts, for example, may give insights into the control of Tavistock Abbey on the farming of large parts of the medieval landscape of Scilly. Better understanding of how farming was managed could lead to more innovative and useful interpretation.
3. The question of how food production changed in the post-medieval and Modern periods might be profitably addressed by selecting locations for a more holistic approach relating buildings, landscape, land use and artefacts. There are relatively good documentary sources on agriculture in Scilly, plus potential for oral history to illuminate more recent practise
4. The impacts on Scilly of agricultural developments at a regional/national scale in the post-medieval period, and particularly from the eighteenth century onwards, could be assessed.

Trade, Transport, and Communications

The movement of objects, people and ideas is most widespread in more recent periods but, obviously, began with the first humans to explore the region. Ports and landing places and the fast disappearing remains of modern communications are identified as important areas to be considered.

1. There are only two instances of briquetage in Scilly, from Dolphin Town, Tresco (Quinnell in press) and Samson Hill, Bryher (Thorpe and Johns forthcoming). Although briquetage is by definition related to salt production it is unclear whether these discoveries relate to salt production. Identification of possible salt production sites should be a priority.

Research Aim 37: Assess the archaeological potential for studying early medieval and medieval economy, trade, technology and production.

1. Trade and interaction in the South West generally expanded considerably during the medieval period with the growth of market towns, ports and an improved communication network. By the medieval period pottery production developed at several centres in the South West and the study of markets and trade with Scilly is a key research item. Trade could also include 'exotic' plant foods which may survive in the archaeological record.
2. What preceded the development of Hugh Town as the market for the Island population?
3. Was there also a separate economic structure for fishing in that all fish had to be brought to the steward and were marketed through him (i.e., not a 'free' market).

Research Aim 38: Widen our understanding of post-medieval and Modern transport and communications.

1. We need to improve our understanding of Scilly as part of the wider 'signalling world' in the post-medieval and modern periods

2. Recent telecommunications systems are subject to rapid change and need to be studied, recorded and artefacts conserved, as a priority.

10.2.6 Social Relations

Perhaps the most difficult area of human existence for archaeology to attempt to understand, issues such as social groupings and population movements are key in some periods in Scilly - changing ownerships of in the medieval and post-medieval periods, associated in-migration, creation of local 'elites', possible archaeological evidence in terms of buildings, material culture, size of holdings, etc? Modern identities have their origins in the past but are poorly understood in material terms. Information may also come from studies of religious activity, mortuary behaviour or defence and conflict (see below).

Research Aim 39: Improve our knowledge of prehistoric and Romano-British social organisation and change through time.

1. Was early prehistoric settlement on Scilly dispersed rather than nucleated, developing into a segmentary society which demonstrated its territoriality through dispersed monuments? Or was settlement more fluid and transient?
2. Can the varying size and form of different Early Bronze Age entrance graves or Iron Age/Romano-British cist graves be seen as reflecting differences in social status or perhaps in function?

Research Aim 40: Use archaeological and historical evidence to better understand Scillonian identity through time.

1. Undertake osteological and isotopic analysis of human remains, such as the early medieval skeletons from Tean which are unusual in showing signs of leprosy and amputation.
2. Link isotope and strontium analysis to diet and early movement of early medieval people (cf Hemer 2012).
3. The majority of 'original' Scillonian families can only trace their association with the islands back to the seventeenth century, when their ancestors came to Scilly during the post-Civil War resettlement. We need to use archaeological and historical evidence to better understand Scillonian identity through time. The IOS Family History Group has potential to help address this Research Aim.

Research Aim 41: Improve our knowledge of the historic development of the tourism industry in Scilly.

Improved rail and sea transport from the mid-nineteenth century marked the beginning of Scilly's tourist industry and this now forms the largest part (85% of its economy, with 120,000 visitors received annually at the beginning of the twenty-first century. We need to improve our knowledge of the development of Scilly's tourism industry.

10.2.7 Religion and Ritual

Religious activities are another difficult area for archaeology but have resulted in significant archaeological remains in some periods, such as Roman Nornour, the Roman Altar from Mount Holles, and extensive Early Christian activity. At other times, for instance in the later Roman period, we know from historical sources of significant change which is, as yet, practically invisible to us.

Research Aim 42: Widen our understanding of prehistoric monumentality, including exploration of the relationships between monuments, topography, landforms and seascapes.

1. Phenomenology and the appropriation of natural features such as carns and other prominent topographical features and the manipulation of the natural world to create, for example, propped stones is a subject that has received little study.

Research Aim 43: Improve our understanding of Iron Age and Roman religion.

1. We need to improve our understanding of the local and wider context of Nornour in the Romano-British period and the remarkable collection of Roman artefacts there. The suggestion that this represented mariners' votive offerings could perhaps be explored by conducting a detailed survey on the island to establish whether any structures remain which could represent any kind of shrine (or even beacon). The intertidal zone should not be neglected. It may also be worth considering a detailed bathymetric - and possibly a sidescan sonar - survey of the seabed around Nornour.

Research Aim 44: Utilise surviving buildings and records to understand liturgical and social change in post-medieval to Modern places of worship and cemeteries.

1. Whilst much is known and much has been written about the buildings that represent the established church in Scilly, the stories that they contain in their records, in their monuments, and within their burial grounds needs to be further assessed and collated. Also, the buildings themselves deserve better analysis, and recognition for the influence they have had on the evolving building traditions of the islands.
2. Nonconformism was a very influential aspect of the culture of the Isles of Scilly and deserves further study, particularly with respect to its surviving buildings. Two chapels have already been converted to domestic use and the most important chapel is used as offices. Consequently, the two chapels that remain in use as places of worship should be recorded as a matter of urgency.
3. There are probably no old purpose-built public houses on the Islands. All the traditional buildings now used as public houses appear to have been adapted from former houses or working buildings. This building type is complicated with respect to its origins and history. It is very important to community life in Scilly today but the role of public houses at earlier times needs to be unravelled as a detailed research project together with close examination of the surviving and former public houses.

Mortuary Practices

Often seen as part of religious behaviour, new approaches are stressing the social processes that influence the treatment of the dead by the living. Study of key episodes can, hopefully, be used to shed light on wider social questions as can scientific analysis of the body itself. Scilly has distinctive mortuary rites during much of prehistory – Bronze Age entrance graves and cairns, the Iron Age and Romano-British cist graves and cist grave cemeteries. The Bryher sword and mirror burial, for instance, links Scilly with the wider traditions of warrior burials and mirror burials.

Research Aim 45: Identify Neolithic mortuary practices, with particular reference to Scilly's regional, national and international context.

There is an interesting absence in Scilly of Neolithic megalithic tombs such as portal dolmens which are found in Penwith, Ireland, and France. It is possible that 'propped stones' could have acted as small megalithic monuments although these have been dated or systematically studied.

Research Aim 46: Refine our understanding of Early Bronze Age mortuary practices.

1. We need to understand why there are so many entrance graves on Scilly compared with Penwith (and south-east Ireland).
2. We need to find out more about cairnfields and better understand the relation of cairns to field systems.

Research Aim 47: Widen our understanding of Iron Age and Roman burial traditions with reference to regional funerary practices.

Approximately 36 Porthcressa-type cists have been discovered in Scilly. We need to learn more about their distribution and contents and relation to the wider south west cist burial tradition.

Research Aim 48: Utilise the potential for good evidence from early medieval burials to address research questions

The early-medieval/medieval burial found during BT trenching at Lower Town, St Martin's in 1992 demonstrates the potential for analysis (Ratcliffe 1997). The three excavated early medieval sites - St Helen's (O'Neil 1964), East Porth, Tean (Thomas 1960b), and East Porth, Samson (Neal forthcoming a), all produced human bone from inhumations, although preservation was poor at Tean and Samson. The bone needs to be located for further analysis.

10.2.8 Defence and Conflict

Conflict usually manifests itself in the archaeological record as defensive structures but may also be represented by artefact scatters or evidence of trauma on human remains. There has been much study of surviving monuments but some types of site, particularly those peripheral to actual fighting (such as garrison life and military procurement), are less well known. Broadening the study of conflict archaeology may throw light on wider social questions, large scale historical change and changing technology.

Research Aim 49: Address the limited knowledge of prehistoric and Romano-British fortifications and conflict.

1. The traditional interpretation of cliff castles as coastal hillforts and places of refuge for the local populace in times of danger is currently being reassessed. In west Cornwall such defended central places have been reinterpreted as economic and social centres under the control of tribal chief. We need to better understand the character of occupation of the two confirmed cliff castles on the Isles of Scilly (Giant's Castle, Shipman Head) and to investigate the possibility of others at Burnt Hill, and Pernagie Point, St Martin's and on St Agnes.

Research Aim 50: Examine the evidence for early medieval defence and conflict sites in Scilly.

1. We currently know very little about defence and conflict in early medieval Scilly other than a probably legendary story that Athelstan (King of Wessex AD 935-939) made a short visit to the islands to deal with Scandinavian raiders.

Research Aim 51: Deepen our understanding of medieval and later defence and conflict sites.

1. We need to learn more about Ennor Castle during the medieval period and carry out fieldwork to assess its context and collect and analyse pottery from gardens in immediate vicinity.
2. The defence buildings of Scilly have benefitted from much investigation and research. However, there is still much to be learned and explained. These buildings need to be studied as a thematic group with all the available information brought into play but with unanswered questions targeted. For

example, when the gun platform was added to Cromwell's castle the original timber or stone staircase was cut away to make a new doorway into the building and the walls made good. This kind of analysis is often lacking from available studies. Reconstruction drawings of the defence buildings explaining the way that they originally functioned and the ways that they have been altered to fulfil advancing technologies would greatly add to our understanding of these important buildings.

3. A survey is needed of sites on the Garrison revealed by IOSWT grazing.
4. We need to continue to record and monitor the condition of seventeenth-century coastal earthworks.
5. The structures related to the proposal to convert Scilly into the southern equivalent of 'Scapa Flow' for the home fleet in the early twentieth century should be investigated further, especially to elucidate how much was actually done before plans were aborted.
6. A full survey and record needs to be made of all WWII constructions, establishments and defences.

10.3 Appendix: Research themes and aims by period

Period	Research Theme	Research Aim	Page
Overarching	Methodology		
		1 Extend the use of proven methodologies for site location and interpretation, & encourage the development of new techniques	
	<i>Synthesis</i>	2 Encourage works of synthesis within & across periods, settlements, monuments and areas	
	<i>Spatial & temporal biases</i>	3 Address apparent "gaps" in our knowledge & assess whether they are meaningful or simply biases in current knowledge	
	<i>Community involvement</i>	4 Encourage wide involvement in archaeological research & present modern accounts of the past to the public	
	<i>Recording</i>	4 Encourage the study of artefact scatters using traditional and innovative methodologies both in the field & on previous collections	
		5 Encourage the accurate reporting & identification of stray finds in ways that benefit archaeological research as a whole	
		7 Prioritise a systematic recording strategy for the built environment & improve the recording & utilisation of archaeological collections & other information sources	
	<i>Transitions</i>	8 Address our lack of understanding of key transitional periods	
	<i>Hidden resources</i>	9 Improve knowledge and study of all relevant museum collections and archives	
		10 Improve access to, & synthesis of 'grey literature'	
		11 Identify & bring to publication key unpublished excavations	
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	
	Science		
	<i>Dating</i>	14 Increase the use & improve the targeting of scientific dating	
	<i>Past environments</i>	15 Improve the quality & quantity of environmental data & our understanding of what they represent	
		16 Target specific soil & sediment contexts for environmental information, including a focus on sand deposits & the preservative qualities of midden deposits	
		17 Improve our understanding of insect faunas & what they can tell us about past environments	
		18 Continue to collect evidence for past climate change & sea level changes together with their effects on peoples' relationships with landscapes and the sea	
	Maritime		
		23 Increase our knowledge of maritime archaeological sites	
		24 Improve our understanding of how the waters around the islands have been used over time	
		25: Assess the information for early ports, harbours & landing places	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	

Period	Research Theme	Research Aim	Page
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		32 Improve our understanding of the environmental impacts of farming	
	Social relations	40 Use archaeological & historical evidence to better understand Scillonian identity through time	
	Religion & ritual	42-48	
	Defence & conflict	49-51	
Palaeolithic & Mesolithic (c700,000 BP – c 4000 BC)			
National & Regional Thematic and Chronological Research Frameworks			
Research Strategy for Prehistory Consultation Draft June 2010			
Research and Conservation Framework for the British Palaeolithic (English Heritage/Prehistoric Society, 2008)			
Mesolithic Research and Conservation Framework for England (2012/13) - Resource Assessment consultation: https://sites.google.com/site/mesolithicframework/			
C J Webster, C J, (ed) 2008. <i>The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda</i> , Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
Research Frameworks for Holocene Lithics in Britain (Lithic Studies Society, 2004)			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
DTI, 2002-2006. <i>Offshore Strategic Environmental Assessments in regard to prehistoric archaeological remains</i> http://www.offshore-sea.org.uk/site/scripts/category_info.php?categoryID=37)			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Transitions</i>	8 Address our lack of understanding of key transitional periods	
	<i>Hidden resources</i>	11 Identify & bring to publication key unpublished excavations	
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	
	Science		
	<i>Past environments</i>	19 Improve our understanding of Palaeolithic & Mesolithic landscapes (landscapes & seascapes)	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	26 Widen our understanding of technology and industry in	

Period	Research Theme	Research Aim	Page
		Scilly	
		27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		30 Understand better the relationships of early prehistoric people to plants & animals	
	<i>Trade, transport & communications</i>	36 Assess the archaeological potential for studying prehistoric & Romano-British economy, trade, technology & production	
	Social relations	39 Improve our knowledge of prehistoric and Romano-British social organisation and change through time	
Neolithic & Early Bronze Age (c 4000 BC – c 1500 BC)			
National & Regional Thematic and Chronological Research Frameworks			
Research Strategy for Prehistory Consultation Draft June 2010			
C J Webster, C J, (ed) 2008. <i>The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda</i> , Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
Research Frameworks for Holocene Lithics in Britain (Lithic Studies Society, 2004)			
Historical Metallurgy Society, 2008. <i>Metals and Metalworking: a research framework for archaeometallurgy</i>			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
DTI, 2002-2006. <i>Offshore Strategic Environmental Assessments in regard to prehistoric archaeological remains</i> http://www.offshore-sea.org.uk/site/scripts/category_info.php?categoryID=37)			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Transitions</i>	8 Address our lack of understanding of key transitional periods	
	<i>Hidden resources</i>	11 Identify & bring to publication key unpublished excavations	
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	

Period	Research Theme	Research Aim	Page
		31 Improve our understanding of agricultural intensification & diversification in later prehistory, including establishment of a chronology for prehistoric field systems	
		32 Improve our understanding of the environmental impacts of farming	
	<i>Trade, transport & communications</i>	36 Assess the archaeological potential for studying prehistoric & Romano-British economy, trade, technology & production	
	Social relations	39 Improve our knowledge of prehistoric and Romano-British social organisation and change through time	
		40 Use archaeological & historical evidence to better understand Scillonian identity through time	
	Religion & ritual	42 Widen our understanding of prehistoric monumentality, including exploration of the relationships between monuments, topography, landforms & seascapes	
	<i>Mortuary practices</i>	45 Identify Neolithic mortuary practices, with particular reference to Scilly's regional, national & international context	
		46 Refine our understanding of Early Bronze Age mortuary practices	
	Defence & conflict	49 Address the limited knowledge of prehistoric & Romano-British fortifications & conflict	
Middle Bronze Age - Iron Age (c 1500 BC – AD 43)			
National Thematic and Chronological Research Frameworks			
Research Strategy for Prehistory Consultation Draft June 2010			
Wessex Archaeology, 2001. <i>Understanding the British Iron Age: an agenda for action</i>			
C J Webster, C J, (ed) 2008. The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda, Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
Historical Metallurgy Society, 2008. Metals and Metalworking: a research framework for archaeometallurgy			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
DTI, 2002-2006. <i>Offshore Strategic Environmental Assessments in regard to prehistoric archaeological remains</i> http://www.offshore-sea.org.uk/site/scripts/category_info.php?categoryID=37			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Transitions</i>	8 Address our lack of understanding of key transitional periods	
	<i>Hidden resources</i>	11 Identify & bring to publication key unpublished excavations	
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	
	Settlement	20 Improve our understanding of prehistoric & Romano-British settlements, monuments & landscapes	
	Production & trade		

Period	Research Theme	Research Aim	Page
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		32 Improve our understanding of the environmental impacts of farming	
	<i>Trade, transport & communications</i>	36 Assess the archaeological potential for studying prehistoric & Romano-British economy, trade, technology & production	
	Social relations	39 Improve our knowledge of prehistoric and Romano-British social organisation and change through time	
		40 Use archaeological & historical evidence to better understand Scillonian identity through time	
	Religion & ritual	42 Widen our understanding of prehistoric monumentality, including exploration of the relationships between monuments, topography, landforms & seascapes	
		43 Improve our understanding of Iron Age & Roman religion	
	<i>Mortuary practices</i>	47 Widen our understanding of Iron Age & Roman burial traditions with reference to regional funerary practices	
	Defence & conflict	49 Address the limited knowledge of prehistoric & Romano-British fortifications & conflict	
Romano-British AD 43 - 410			
National Thematic and Chronological Research Frameworks			
S James & M Millett (eds), 2001. Britons and Romans: Advancing a Research agenda, <i>CBA Research Report, 125</i>			
C J Webster, C J, (ed) 2008. The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda, Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
A Research Strategy and Updated Agenda for the Study of Roman Pottery in Britain Study Group for Roman Pottery. 2012 http://romanpotterystudy.org/SGRPPublications/strategy/strategy.html			
D Perring, 2002. <i>Town and Country in England: frameworks for archaeological research</i> (CBA)			
Historical Metallurgy Society, 2008. <i>Metals and Metalworking: a research framework for archaeometallurgy</i>			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Transitions</i>	8 Address our lack of understanding of key transitional periods	
	<i>Hidden resources</i>	11 Identify & bring to publication key unpublished excavations	
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	

Period	Research Theme	Research Aim	Page
	Settlement	20 Improve our understanding of prehistoric & Romano-British settlements, monuments & landscapes	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		32 Improve our understanding of the environmental impacts of farming	
		33 Assess the character of food procurement in the Romano-British period	
		34 Investigate the origins of the chronology of use of free-threshing wheat	
	<i>Trade, transport & communications</i>	36 Assess the archaeological potential for studying prehistoric & Romano-British economy, trade, technology & production	
	Social relations	39 Improve our knowledge of prehistoric and Romano-British social organisation and change through time	
		40 Use archaeological & historical evidence to better understand Scillonian identity through time	
	Religion & ritual	43 Improve our understanding of Iron Age & Roman religion	
	<i>Mortuary practices</i>	47 Widen our understanding of Iron Age & Roman burial traditions with reference to regional funerary practices	
	Defence & conflict	49 Address the limited knowledge of prehistoric & Romano-British fortifications & conflict	
Early medieval AD 410 - 1066			
National Thematic and Chronological Research Frameworks			
C J Webster, C J, (ed) 2008. The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda, Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
A Research Framework for Post-Roman Ceramic Studies in Britain - Medieval Pottery Research Group. 2012 http://www.mprgframework.info/			
Historical Metallurgy Society, 2008. <i>Metals and Metalworking: a research framework for archaeometallurgy</i>			
D Perring, 2002. Town and Country in England: frameworks for archaeological research (CBA)			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Transitions</i>	8 Address our lack of understanding of key transitional periods	

Period	Research Theme	Research Aim	Page
	<i>Hidden resources</i>	11 Identify & bring to publication key unpublished excavations	
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	
	Settlement	21 Improve our understanding of early medieval settlements, religious buildings, monuments & landscapes	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		32 Improve our understanding of the environmental impacts of farming	
		34 Investigate the origins of the chronology of use of free-threshing wheat	
	<i>Trade, transport & communications</i>	37 Assess the archaeological potential for studying early medieval & medieval economy, trade, technology & production	
	Social relations	40 Use archaeological & historical evidence to better understand Scillonian identity through time	
	Ritual & religion		
	<i>Mortuary practices</i>	48 Utilise the potential for good evidence from early medieval burials to address research questions	
	Defence & conflict	Examine the evidence for early medieval defence and conflict sites in Scilly	
Medieval (1066 - 1547)			
National Thematic and Chronological Research Frameworks			
C J Webster, C J, (ed) 2008. The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda, Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
A Research Framework for Post-Roman Ceramic Studies in Britain – Medieval Pottery Research Group. 2012 http://www.mprgframework.info/			
Historical Metallurgy Society, 2008. <i>Metals and Metalworking: a research framework for archaeometallurgy</i>			
D Perring, 2002. <i>Town and Country in England: frameworks for archaeological research (CBA)</i>			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	
	Settlement	22 Improve our understanding of medieval and later	

Period	Research Theme	Research Aim	Page
		settlements, buildings & landscapes	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		32 Improve our understanding of the environmental impacts of farming	
		35 Improve our understanding of medieval, post-medieval & modern farming & food production	
	<i>Trade, transport & communications</i>	37 Assess the archaeological potential for studying early medieval & medieval economy, trade, technology & production	
	Social relations	40 Use archaeological & historical evidence to better understand Scillonian identity through time	
	Defence & conflict	51 Deepen our understanding of medieval & later defence & conflict sites	
Post-medieval & modern (1547 to present)			
National Thematic and Chronological Research Frameworks			
C J Webster, C J, (ed) 2008. The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda, Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
Historical Metallurgy Society, 2008. <i>Metals and Metalworking: a research framework for archaeometallurgy</i>			
M Palmer, 1991(ed). <i>Industrial Archaeology: Working for the Future</i> , Association for Industrial Archaeology			
D Gwyn & M Palmer (eds) 2005. Understanding the Workplace: A Research Framework For Industrial Archaeology in Britain, <i>Industrial Archaeology Review</i> , Vol XXVII, 1 , (Association for Industrial Archaeology)			
J Bayley, D Crossley, and M Ponting (eds). <i>Metals and Metal Working; a research agenda for archaeometallurgy</i> , Historical Metallurgy Society (HMS Occasional Publication, London)			
National Association of Mining History Organisations Research Framework * *underway – publication April 2013			
Cornish Mining World Heritage Site http://www.cornwall.gov.uk/default.aspx?page=17376			
D Perring, 2002. <i>Town and Country in England: frameworks for archaeological research</i> (CBA)			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	

Period	Research Theme	Research Aim	Page
		13 Use innovative techniques & methodologies to ask sophisticated questions of post-medieval to modern artefacts and buildings	
	Settlement	22 Improve our understanding of medieval and later settlements, buildings & landscapes	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		32 Improve our understanding of the environmental impacts of farming	
		35: Improve our understanding of medieval, post-medieval and modern farming and food production	
	<i>Trade, transport & communications</i>	38 Widen our understanding of post-medieval & Modern transport & communications	
	Social relations	40 Use archaeological & historical evidence to better understand Scillonian identity through time	
		41 Improve our knowledge of the historic development of the tourism industry in Scilly	
	Religion & ritual	44 Utilise surviving buildings & records to understand liturgical & social change in post-medieval to Modern places of worship & cemeteries	
	Defence & conflict	51 Deepen our understanding of medieval & later defence & conflict sites	

11 References

11.1 Primary sources

Sixteenth century (British Library Cotton MS. Augustus I.***.18. <http://www.bl.uk/onlinegallery/onlineex/unvbrit/s/zoomify82874.html>)

A chart in the Bibliotheque Nationale de France, prepared by Romain de Hooge in 1693, shows St Mary's with the fort set in the middle of the Garrison and the early wall across the hillside cutting the Garrison off from Hugh Town. However, the single fort shown is not Star Castle, but the plan of the 'old Fort', including its diamond-orientation (Bibliotheque Nationale de France Cartes et Plans – GE AF PF – 35 (46))

1715 (British Library King's Manuscript 45 f.7) - useful block plan of Hugh Town

1750 (Star Castle) – sketchy depiction of Hugh Town

Tithe Map and Apportionment, c1840. *Scilly Islands* (microfiche copy at HE)

Ordnance Survey, c1891. *25 Inch Map* First Edition (licensed digital copy at HE)

Ordnance Survey, c1908. *25 Inch Map* Second Edition (licensed digital copy at HE)

Ordnance Survey, 2007. *Mastermap Digital Mapping*

11.1.1.1 National Monument Record

1741 (NMR Works 31/1147) - very sketchy

1742 (NMR Works 31/1148) - useful block plan of Hugh Town

1744 (National Archives MPH 1/413) - useful block plan of Hugh Town

1746 (NMR Works 31/1149) - little of Hugh Town is shown

11.1.1.2 Cornwall Record Office

1655 (Cornwall Record Office GO/574) General Map of Islands, little detail

c 1655 (Cornwall Record Office GO/575) Map of the Garrison, Hugh Town not depicted

Godolphin Rental of 1712 (CRO DDGO/643)

c 1840 TM/206/1 St Mary's Tithe Map

1847 TM/206/2 Tresco Tithe Map

Justin Brooke Parochial Mines Index: Isles of Scilly Mines CRO X745 Folder 37 or 39

11.1.1.3 Tresco Abbey

However, between 1829 and 1831 George and Edward Driver carried out a rental survey of the islands for the Duchy of Cornwall. They listed all the holdings, tenements and occupiers. The originals are held in the archives at Tresco Abbey.

11.1.1.4 Duchy of Cornwall

George Driver, 1831. *Report*, Duchy of Cornwall Office, London

Edward Driver, 1829. *Report on the Survey of the Islands*, Duchy of Cornwall Office, London

There are reduced photographic copies in the archives of the Duchy of Cornwall Office in London of four Driver Bros manuscript maps (1829-31) covering (1) St Agnes, Annet, Gugh, St Martin's and White Island; (2) Bryher, Tresco, Gweal, St Helen's etc; (3) St Mary's; and (4) Samson, Tean and the Eastern Isles.

11.1.1.5 UK Hydrographic Office

Date	Held at	Reference	Shelf No	Surveyor	Title
c1585	Copy in 'The Scillonian, no 122	n/a	n/a	Capt John Davis	Les Sorlinges
1691-8	UKHO	B888	Historical Press	Capt Greenville Collins	The Isles of Scilly
c1708	PRO	n/a	n/a	Edmund Gostello	A Map of the Islands of Scilly Showing all the Rocks and Ledges with the Soundings & Barings And y Exact Places where the <i>Association, Eagle Rumney & Firebrand</i> were Lost.
1772	UKHO	642	Ik	Mackenzie	Part of the coast of Cornwall in the English Channel
1779	UKHO	B327a	Oh	A Tovey & N Ginver	A New Chart of the Islands of Scilly with their Soundings Channels and Sailing Marks
1789	UKHO	L48	Qe	Capt Salisbury	Unknown
1792	UKHO	637	1g	G Spence	Survey of Scilly
1792	UKHO	671	13k	G Spence	Tide Table, Scilly
1792	UKHO	674	15e	G Spence	Maritime Survey of Scilly
1792	UKHO	700	Dd	G Spence	Maritime Survey of Scilly [1796 copy by Walker?]
1792	UKHO	702	Dc	G Spence	Trig. Of Scilly, Lands End & Lizard
1792	UKHO	702	Dc	G Spence	Maritime Survey of Scilly
1792	UKHO	702a	38d	G Spence	Maritime survey of Scilly
Nd	UKHO	742	Di	Unknown	Scilly Isles
1800	UKHO	688	51b	G Spence	Torbay & part of Scilly Isles
1803	UKHO	B312	Dk	Heather	New and Improved Chart of the Isles of Scilly
1808?	UKHO	728	Dk	G Spence	Scilly Isles with proposed roadstead for man of war
1808	UKHO	28a	13i	G Spence	Scilly Isles with proposed roadstead for man of war inside St Mary's
1808	UKHO	790	Dd	McKenzie / G Spence	England, Wales and Scilly Isles
nd	UKHO	811	England	Capt M	Chart of New Grimsby

Date	Held at	Reference	Shelf No	Surveyor	Title
			Folio 4	White	Harbour
nd	UKHO	836	O1	Capt White	M Position of Seven Stones from Mudge's Trigomy Survey
nd 1847	UKHO	L4911	Qb	Unknown	The Scilly Isles Tithe map for the Isles of Scilly (St Mary's) & Tresco (microfiche copy at CAU)
1860- 3	UKHO	D7043	13i	Capt Williams	Scilly's depth soundings
1862	UKHO	D6366	6d	Capt Williams	Scilly's and the Seven Stones
1862	UKHO	D6364	Qg	Capt Williams	St Mary's Pool
1862	UKHO	D6365	Oh	Capt Williams	St Mary's Town [Hugh Town]
1863	UKHO	D7042	Ih	Capt Williams	Scilly's depth soundings round south sheet
1863	UKHO	D7041	Ih	Capt Williams	Scilly's depth soundings round North Star including seventres
1863	UKHO	D7044	31b	Capt Williams	Scilly's and Seven Stones
1863	UKHO	A2039	40e	Imray & sons	Scilly's and Seven Stones
1889	OS				<i>25 Inch Map</i> First Edition (microfiche copy at CAU)
1897	UKHO	B6241	Oi*	Capt Maxwell	St Mary's pool
1898	UKHO	B6825	11n	Capt Maxwell	St Mary's Road
1898	UKHO	B6826	16m	Capt Maxwell	St Mary's Road
1904	UKHO	9774	12h	Capt Maxwell	Western Approaches to Broadside Scilly Isles
1908	OS				<i>25 Inch Map</i> Second Edition (microfiche copy at CAU)
1983	UKHO	883	DI		Isles of Scilly, St Mary's and the Principal Offshore Islands

11.2 Publications

- Adams, J H, 1957. The Medieval Chapels of Cornwall, *Jnl Royal Inst Cornwall*, ns, **3**, **1**, 48-65
- Allan, J P, 1993. Medieval and later pottery, in Ratcliffe 1993, 93-99
- Allan, J P, and Langman, G, 1998-9. The pottery: Investigations at Nos 4-6 Pydar Street, Truro, *Cornish Archaeol*, **37-38**, 180-189
- Anderson-Whymark, H, and Thomas, J, (eds), 2011. *Beyond the mundane: regional perspectives on Neolithic pit deposition*, Oxford
- Anthony, D, 1990. Migrations in archaeology: the baby and the bathwater. *American Anthropologist*, **92**, 895-914
- Arbery, G, 2002. *The Isles of Scilly Heritage and Culture Strategy*, Consultation Draft, St Mary's (Council of the Isles of Scilly)
- Archaeological and Archival and Mainmast Conservation, 2008. *A walk around the fortifications and artillery of Garrison Hill (The Hugh)*, St Mary's, Isles of Scilly, Archaeological and Archival
- Arlott, J, 1983. *Island camera: the Isles of Scilly in the photographs of the Gibson family*, Newton Abbot
- Armit, I, Murphy, E, Nelis, E, and Simpson, D, (eds), 2003. *Neolithic settlement in Ireland and Western Britain*, Oxford
- Ashbee, P, 1952. Two Stone Cists on St Mary's, Isles of Scilly, *Proc West Cornwall Field Club*, **1**, 28-30
- Ashbee, P, 1954. The Excavation of a Cist-grave Cemetery and Associated Structures near Hughtown, St Mary's, Isles of Scilly, 1949-50, *Archaeol Journ*, **111**, 1-25
- Ashbee, P, 1963. The Chambered Tombs on St Mary's, Isles of Scilly, 1965-1966 *Cornish Archaeol*, **2**, 20-27
- Ashbee, P, 1966. Halangy Down, St Mary's, Isles of Scilly, 1965-1966 *Cornish Archaeol*, **5**, 9-18
- Ashbee, P, 1974. *Ancient Scilly, from the first farmers to the Early Christians: an introduction and survey*, Newton Abbot
- Ashbee, P, 1976. Bant's Carn, St Mary's, Isles of Scilly: an entrance grave restored and reconsidered, *Cornish Archaeol*, **15**, 11-26
- Ashbee, P, 1979. The Porthcressa Cist-Graves, St Mary's, isles of Scilly: A Postscript, *Cornish Archaeol* **18**, 61-80
- Ashbee, P, 1981. George Bonsor: an archaeological pioneer from Spain on Scilly, *Cornish Studies*, **8**, 53-63
- Ashbee, P, 1982. Mesolithic Megaliths? The Scillonian entrance-graves: a new view, *Cornish Archaeol*, **21**, 3-22
- Ashbee, P, 1983a. Halangy Porth, St Mary's, Isles of Scilly, excavations 1975-1976. *Cornish Archaeol*, **22**, 3-46
- Ashbee, P, 1983b. An Iron Age spiral bronze ring from Scilly, *Cornish Archaeol*, **22**, 120-1
- Ashbee, P, 1983a. Halangy Porth, St Mary's, Isles of Scilly, excavations 1975-1976. *Cornish Archaeol*, **22**, 3-46
- Ashbee, P, 1986. Ancient Scilly: retrospect, aspect and prospect, *Cornish Archaeol*, **25**, 186-219

- Ashbee, P, 1988. Luftwaffe aerial photographs of the Isles of Scilly, *Cornish Archaeol*, **27**, 201-3
- Ashbee, P, 1996. Halangy Down, St Mary's Isles of Scilly: Excavations 1964-1977, *Cornish Archaeology* **35**, 1- 201
- Ashbee, P, and Thomas,C, 1990. Scilly's statue-menhir rediscovered, *Antiquity*, **64**, 571-5
- Bailey, G N, 1978. Shell middens as indicators of postglacial economies: a territorial perspective, in P Mellars (ed), *The Early Postglacial Settlement of Northern Europe*, London, 37-63
- Balaam, N, 1981. Bar Point: pollen analysis. *DoE AML Rep*, **4109**
- Balaam, N, 1984. Charred plant remains, in J G Evans, 30
- Banerjee, D, Murray, A S, and Foster, A D L, 2001. Scilly Isles, UK: optical dating of a possible tsunami deposit, *Quaternary Science Review*, **20**, 715-8
- Barnatt, J, 1982. *Prehistoric Cornwall: The Ceremonial Monuments*, Wellingborough
- Barrett, J, 1994. *Fragments from Antiquity*, Oxford: Blackwell
- Barrett, J, Bradley, R. and Green, M, 1991. *Landscape, Monuments and Society: The Prehistory of Cranbourne Chase*, Cambridge
- Barrowman, R C, Batey, C E, and Morris, C D, 2007. Excavations at Tintagel Castle, Cornwall, 1990-1999. Reports of the Research Committee of the Society of Antiquaries of London, **74**, Society of Antiquaries of London
- Beagrie, N, 1989. Excavations by Bryan and Helen O'Neil on the Isles of Scilly, in Bowden, Mackay and Topping (eds) 1989, 49-54
- Bell, M, 1984. Environmental Archaeology in South West England in H C M Keelery (ed) *Environmental Archaeology: A Regional Review*, 45-7
- Bender, B, Hamilton, S, and Tilley, C, 1997. Leskernick: stone worlds: alternative narratives, nested landscapes, *Proc Prehist Soc*, **63**, 147-78
- Bennett, M, Bushell, R, Mumford, C T, Pritchard, S, and Watt, S, 1991. *One Hundred Years of the Council of the Isles of Scilly*, St Mary's
- Betjeman, J, 1964. *Cornwall, a Shell Guide*, London
- Betjeman, J, and Rowse, A L, 1974. *Victorian and Edwardian Cornwall from old photographs*, London
- Biek, L, forthcoming. The slags, in Neal forthcoming a
- Binford, L R, 1968. Post-Pleistocene adaptations, in S R and L R Binford (eds), *New Perspectives in Archaeology*, Chicago
- Bird, S, 1991. *Mayday! Preserving Life from Shipwreck off Cornwall*, Bradford on Avon
- Blackman, T, 2011. Pseudo-quoits to propped stones, in Pearce (ed) 2011, 41-7
- Bone, M, and Dawson, D (eds), 2008. Post-medieval, Industrial and Modern, in C J Webster (ed), 213-267
- Borlase, W, 1753. Of the great alterations which the Isles of Scilly have undergone since the time of the ancients, *Philosophical Transactions of the Royal Society*, **XVIII**, **1**, 55-67
- Borlase, W, 1756. *Observations on the Ancient and Present State of the Isles of Scilly*, Oxford: W Jackson
- Borlase, W, 1769. *Antiquities of Cornwall*, Oxford

- Borlase, W C, 1879. Archaeological Discoveries in the Parishes of St Just-in-Penwith and Sennen, Made During the Past Year by the President, W C Borlase MA, *Journ Roy Inst Cornwall*, **21** (May), 190-212
- Bowen, E G, 1969. *Saints, Seaways and Settlements in Celtic Lands*, Cardiff
- Bowen, E G, 1970. Britain and the British seas, in D Moore (ed), *The Irish Sea Province in Archaeology and History*, Cardiff, 13-28
- Bowen, E G, 1972. *Britain and the Western Seaways*, London
- Bowden, M, and Brodie, A, 2012. *Defending Scilly*, Swindon (English Heritage)
- Bowden, M, Mackay, D, and Topping P (eds), 1989. *From Cornwall to Caithness, Some Aspects of British Field Archaeology: Papers Presented to Norman V Quinnell*, Brit Arch Repts, Brit Ser, **209**, Oxford,
- Bowley, R, 1964. *The Fortunate Isles: A History of the Isles of Scilly*, 5th edtn, Reading
- Bowley, R L, 2010. *Scilly at War*, St Mary's
- Bradley, R, 1990. *Passage of Arms: An Archaeological Analysis of Prehistoric Hoards and Votive Deposits*, Cambridge
- Bradley, R, 2000. *The good stones: a new investigation of the Clava Cairns*, Edinburgh
- Bradley, R, 2007. *The Prehistory of Britain and Ireland*, Cambridge
- Breen, E, 2006. Constructing meanings from the architecture of landscape on the isles of Scilly, in Approaching "prehistoric and protohistoric architectures" of Europe from a "dwelling perspective": proceedings of the TAG session, Sheffield 2005, V O Jorge, with the assistance of J M Cardoso *et al* (eds), *Journal of Iberian Archaeology*, **8**, 265-80
- Breen, E, 2008. Encounters with place in prehistory: writing a case study for Shipman Head Down, Isles of Scilly, in *Recent Approaches to the Archaeology of Land Allotment*, A, Chadwick (ed), Brit Arch Repts, Brit Ser, **75**, Oxford, 97-109
- Brodie A, 2010. The Tudor Defences of Scilly, *English Heritage Historical Review*, **5**, 24-43
- Brodie, A, nd. Abraham Tovey (1687-1759) – Matross, Master Gunner and Mastermind of Scilly's Defences, *The Georgian Group Journal*, **19**, 50-66
- Bronk Ramsey, C. 2005. *OxCal*. Research Laboratory for Archaeology, University of Oxford, 3.10 edition
- Broodbank, C, 2000. *An Island Archaeology of the Early Cyclades*, Cambridge
- Brophy, K, and Barclay, A, (eds), 2008. *Defining a Regional Neolithic: evidence from Britain and Ireland*, Oxford
- Brothwell, D, 1961. The Palaeopathology of Early British Man: an essay on the problems of diagnosis, *Journ Roy Anthropological Inst of Great Britain and Ireland*, **91**, **2**, 318-44
- Brothwell, D R, 1981. *Digging up bones: the excavation, treatment and study of human skeletal remains*, 3 edn, London
- Bruce-Mitford, R, 1997. *Mawgan Porth. A settlement of the late Saxon period on the north Cornish coast*, English Heritage
- Brück, J, 1996. The Early – Middle Bronze Age Transition in Wessex, Sussex and the Thames Valley, Unpublished PhD Thesis, University of Cambridge
- Brück, J, 1999a. Houses, Lifecycles and Deposition on Middle Bronze Age Settlements in Southern England, *Proc Prehist Soc*, **65**, 145-166

- Brück, J, 1999b. What's in a settlement? Domestic practice and residential mobility in early bronze age southern England, in J Bruck and M Goodman (eds), *Making places in the prehistoric world: themes in settlement archaeology*, London, 55-77
- Buchanan, C, and Context 4D, 2006. *Isles of Scilly design guide*, St Mary's (Council of the Isles of Scilly)
- Butcher, S A, 1978. Excavations at Nornour, Isles of Scilly 1969-73: the pre-Roman settlement, *Cornish Archaeol*, **17**, 29-112
- Butcher, S, 1993. *Nornour*, Isles of Scilly Museum Publication, **7**, St Mary's
- Butcher, S, 2000-1. Roman Nornour, Isles of Scilly: reconsideration, *Cornish Archaeol*, **39-40**, 5-44
- Butcher, S A, 2002. Two cist graves at Lunnon Farm, St Mary's, Isles of Scilly, unpublished field report
- Butcher S A, in prep. The brooch, in Taylor and Johns in prep
- Butcher, S A, and Johns, C, forthcoming. Excavation of a prehistoric site at Bar Point, St Mary's, Isles of Scilly, 1972, *Cornish Archaeol*
- Butler, J, 1997. The Prehistoric Settlement of Dartmoor, Unpublished PhD thesis, University of London
- Callaghan, R, and Scarre, C, 2009. Simulating the Western Seaways, *Oxford Journ Archaeol*, **28**, 357-372
- Camidge, K, 2001. *HMS Colossus Survey Report*. Unpublished report for English Heritage, Penzance (CISMAS)
- Camidge, K, 2002. *HMS Colossus Survey Report*. Unpublished report for DCMS/EH, Penzance (CISMAS)
- Camidge, K, 2005. *HMS Colossus Stabilisation Trial*. Unpublished report for English Heritage, Penzance (CISMAS)
- Camidge, K, 2008. *HMS Colossus Stabilisation & Recording*. Unpublished report for English Heritage, Penzance (CISMAS)
- Camidge, K, 2009. HMS Colossus, an Experimental Site Stabilization. *Conservation and Management of Archaeological Sites*, **11(2)**, 161-88
- Camidge, K, 2010. HMS Colossus Monitoring Survey, Unpublished report for English Heritage, Penzance (CISMAS)
- Camidge, K, 2011. *Firebrand Shipwreck Recording Project*, Penzance (CISMAS)
- Camidge, K, Witheridge, J, and Witheridge, R, 2005. *HMS Colossus, CISMAS Debris Field Survey. Project Report*, Penzance (CISMAS)
- Camidge, K, Charman, S, Rees P, and Randall, L, 2010. *Samson Flats intertidal survey: project report 2010, Penzance*, (Cornwall and Isles of Scilly Maritime Archaeology Society report 5694)
- Camidge, K, Charman, D, Johns, C, Meadows, J, Mills, S, Mulville, J, Roberts, H M, and Stevens, T, 2010. *The Lyonesse Project: evolution of the coastal and marine environment of Scilly, Year 1 Report*, Truro (HE Projects, Cornwall Council)
- Campbell, E, 1991. Imported goods in the Early Medieval Celtic West with special reference to Dinas Powys. Unpublished PhD thesis, Cardiff University
- Campbell, E, 1996. The archaeological evidence for contacts: imports, trade and economy in Celtic Britain AD 400-800, in K R Dark (ed), *External Contacts and the Economy of Late Roman and Post-Roman Britain*, Woodbridge, 83-96

- Campbell, E, 2007. *Continental and Mediterranean Imports to Atlantic Britain and Ireland, AD 400–800*, CBA Research Report, **157**, York
- Charman, D, Bayliss, A, Camidge, K, Fyfe, R, Johns, C, Meadows, J, Mills, S, Mulville, J, Roberts, H M, and Stevens, T, 2012. *The Lyonesse Project: evolution of the coastal and marine environment of Scilly, Draft Final Report*, Truro (HE Projects, Cornwall Council)
- Cherry, J, 1981. Pattern and process in the earliest colonization of the Mediterranean islands, *Proc Prehist Soc*, **47**, 41-68
- Chope, R P, 1918. *Early Tours in Devon and Cornwall*, Newton Abbot (reprinted 1967)
- Chudleigh, D, 1992. *Bridge over Lyonesse*. Isles of Scilly Steamship Company
- Clark, A J, 1978. Radiocarbon and magnetic dating, in Butcher 1978, 66-7
- Clark, A J, Tarling, D H, and Noel, M, 1988. Developments in archaeomagnetic dating in Britain, *Journl Archaeol Science*, **15(6)**, 645-667
- Clark, P, (ed), 2004. *The Dover Bronze Age Boat in Context: Society and water transport in prehistoric Europe*
- Clark, P, 2004a. Discussion, in Clark (ed) 2004, 305-330
- Clark, P, 2004b. The Dover Boat ten years after its discovery, in Clark (ed) 2004, 1-12
- Clelland, S, and Batt, C M, nd. *Summary of the results of the re-evaluation of the magnetic data from Little Bay, Isles of Scilly*, Bradford
- Coate, S, 1994. The Problems of the Scillonian Entrance Graves: the Evidence Reconsidered, unpublished undergraduate dissertation, Exeter University (copy held by HE Projects, Cornwall Council)
- Cole, D, and Jones, A M, 2002-3. Journeys to the Rock: archaeological investigations at Tregarrick Farm, Roche. *Cornish Archaeol*, **41-42**, 107-143
- Cole, D, and Thorpe, C, 1996. Penhale Round/SWEB 5 - An Archaeological Watching Brief, Truro (Cornwall Archaeological Unit)
- Cooke, J, 1883. *The Shipwreck of Sir Cloudesley Shovell on the Islands in 1707*, London
- Cook, S F, and Treganza, A E, 1950. The quantitative investigation of Indian Mounds, *University of California Publications in American Archaeology and Ethnology*, **40** (5), 223-262
- Cooney, G. 2004. Neolithic worlds: islands in the Irish Sea, in V Cummings and C Fowler (eds), 145-159
- Cornwall Archaeological Unit, 1999. *The Garrison, St Mary's, Isles of Scilly: a Walk around the walls* [leaflet], Truro (Cornwall Archaeological Unit)
- Cornish, T, 1874. The Conversazione, *Jnl Royal Inst Cornwall*, **5**, ixvii
- Council of the Isles of Scilly, 2004. *A heritage and cultural strategy for the Isles of Scilly*, St Mary
- Council of the Isles of Scilly, 2005. *The Isles of Scilly Local Plan. A 2020 vision*, St Mary's
- Courtney, L H, 1867. *A week in the Isles of Scilly*, Penzance
- Cowan, R, 1982. The Pleinschaal from the Hollandia. *IJNA*, **11(4)**, 287-91
- Cowan, R, 1997. *A century of images: photographs by the Gibson family*, London
- Cowan, R, Cowan, Z, and Marsten, P, 1975. The Dutch East Indiaman Hollandia wrecked on the Isles of Scilly, *IJNA*, **4(2)**, 267-300
- Cowan, Z, 2001. *Francis Frith's Isles of Scilly*, Salisbury

- Cowan, Z T, 1991. *The Story of Samson – an Island Community of Scilly – The Webbers and the Woodcocks*, Cirencester
- Cox, J, and Thorp, J R L, 1993. *Star Castle, St Mary's, Isles of Scilly*, Exeter (report to English Heritage by Keystone Historic Buildings Consultants)
- Craddock, P, and Hook, D, 1987. Ingots from the sea: The British Museum collection of ingots. *IJNR*, **16(3)**, 201-06
- Crawford, O G S, 1927. Lyonesse, *Antiquity* **I**, 5-14
- Crawford, O G S, 1928. Stone Cists, *Antiquity*, **2**, 418-422
- Crawford, O G S, 1946. Editorial, *Antiquity*, **20**, 21
- Crone, A, and Campbell, E, 2005. A Crannog of the First Millenium AD: Excavations by Jack Scott at Loch Glashan, Argyll, 1960, *Soc Antiq Scotland*
- Cummings, V, and Fowler, C, (eds) 2004. *The Neolithic of the Irish Sea: Materiality and traditions of practice*, Oxford
- Cummings, V, and Fowler, C, 2004a. Introduction, in Cummings and Fowler (eds) 2003, 1-8
- Cummings, V, and Whittle, A, 2004b. *Places of special virtue: megaliths in the Neolithic landscapes of Wales*, Oxford
- Cummings, V, and Fowler, C, 2007. *From cairn to cemetery. An archaeological investigation of the chambered cairns and early Bronze Age mortuary deposits at Cairnderry and Bargrennan White Cairn, south-west Scotland*, Brit Arch Repts, Brit Ser, **434**, Oxford
- Cunliffe, B, 2001. *Facing the Ocean: The Atlantic and its peoples, 8000 BC-AD 1500*, Oxford
- Curet, L A, 2005. *Caribbean Palaeodemography*, Tuscaloosa
- Daniel, G E, 1941. The dual nature of the megalithic colonisation of Europe, *Proc Prehist Soc*, **7**, 1-49
- Daniel, G, E, 1950. *Prehistoric Chamber Tombs of England and Wales*, Cambridge
- Dark, K, 2001. *Byzantine Pottery*, Oxford
- Davies, C J, 1988. Shipbuilding on the Isles of Scilly, *Jnl Royal Inst Cornwall*, ns, **10**, 187-220
- Dimbleby, G W, 1976–7. A buried soil at Innisidgen, St Mary's, Isles of Scilly. *Cornish Studies*, **45**, 5–10
- Dimbleby, G W, Greig, J R A, and Scaife, R G, 1981. Vegetational history of the Isles of Scilly, in D Brothwell and G W Dimbleby, (eds), *Environmental aspects of coasts and islands*, Brit Arch Repts, Int Ser, **94**, Oxford, 127-143
- Dimbleby, G W, 1996. The soil pollen, in Ashbee 1996, 171-4
- Doble, G H. 1938. *Saint Mawes, Abbot and Confessor* (Cornish Saints I, 2nd edn, revised), Long Compton
- Douch, H L, 1969. Cornish earthenware potters, *Journ Roy Institution Cornwall*, ns, **6**, 33–64
- Dudley, D, 1960-1. Some cist-graves in Poynter's Garden, St Mary's, Isles of Scilly, *Proc W Cornwall Fld Clb* **2, 5**, 221-229
- Dudley, D, 1967. Excavations on Nornour in the Isles of Scilly 1962-1966, *Archaeol Journ*, 124, 1-64

- Dumville, D N, 2002 The north Atlantic monastic thalassocracy: sailing the desert in early medieval insular spirituality, in N E Crawford (ed), *The Papar in the North Atlantic: Environment and History. The 'Papar' Project, Vol. 1, St. John's House Papers*, **10**, St Andrews, 121-31
- Dunning, G C, 1964. Objects of metal, stone and bone, in O'Neil 1964, 66-8
- Dunning, G C, 1965. Medieval pottery from the Celtic hermitage on St Helen's, Isles of Scilly, *Archaeol Journ*, **121**, 55-66
- Edmonds, M, 1997. Taskscape, technology and tradition, *Analecta Praehistorica Leidensia*, **29**, 99-110.
- Engelsman, S, 1982. The navigational ruler from the Hollandia (1743). *IJNA*, **11(4)**, 291-92
- English Heritage 1996. *Frameworks for our Past*, English Heritage
- English Heritage 2011. *National Heritage Protection Programme*, English Heritage
- Evans, C D R, 1990. *United Kingdom offshore regional report: the geology of the Western English Channel and its western approaches*, British Geological Society, London
- Evans, D H, 1984. Clay pipes, in H Mason, 67-68
- Evans, J D, 1973. Islands as laboratories for the study of cultural process, in C Renfrew (ed), *The Explanation of Culture Change: Models in Prehistory*, London. 517-20
- Evans, J G, 1984. Excavations at Bar Point, St Mary's, Isles of Scilly, 1979-80, *Cornish Studies*, **11**, 7-32
- Fairnell, E H, and Barrett, J H, 2007. Fur-bearing species and Scottish islands, *Journ Archaeol Science*, **34**, 463-84
- Fellows, D, 2007. *The Garrison, St Mary's, Isles of Scilly: archaeological evaluation report project 4792*, English Heritage Research Department, Rept Ser no **69/2007**
- Fenwick, V, and Gale, A, 1998. *Historic Shipwrecks Discovered, Protected and Investigated*, Stroud
- Fleming, A, 2005. *St Kilda and the Wider World*, Macclesfield
- Fowler, P J, and Thomas, C, 1979. Lyonesse revisited: the early walls of Scilly, *Antiquity*, **53**, 175-189
- Fox, C. 1932. *The Personality of Britain*, Cardiff
- Fox, A, 1995. Tin ingots from Bigbury Bay, *Proc Devon Archaeol Soc*, **53**, 11-23
- Fulford, M, 1989. A Roman Shipwreck off Nornour, Isles of Scilly, *Britannia*, **20**, 245-49
- Fulford, M, Champion, T, and Long, A, 1997. *England's Coastal Heritage: A Survey for English Heritage*, London
- Gahan, A, and McCutcheon, C, 1997. Medieval pottery in M F Hurley, O M B Scully, and S W J McCutcheon (eds), *Late Viking Age and Medieval Waterford: excavations 1986-1992*, Waterford, 285-359
- Garrow, D, 2010. The temporality of materials: occupation practices in Eastern England during the 5th and 4th millennia BC, in B Finlayson and G Warren (eds), *Landscapes in Transition: understanding hunter-gatherer and farming landscapes in the early Holocene of Europe and the Levant*, Oxford, 208-220
- Garrow, D, and Sturt, F, 2009. *Stepping stones to the Neolithic? Islands and the western seaways of Britain, 4500-3500 BCa brief project outline in advance of*

potential funding applications - Isles of Scilly (Universities of Liverpool and Southampton)

- Garrow, D, and Sturt, F, 2011. Grey waters bright with Neolithic argonauts? Maritime connections and the Mesolithic-Neolithic transition within the 'western seaways' of Britain, c 5000-3500 BC, *Antiquity*, **85**, 59-72
- Gater, J, 1999. *Geophysical Survey Report 99/67. Dolphin Town, Tresco, Isles of Scilly*, Bradford (GSB)
- Gawronski, J, Kist, B, and Stokvis-van Boetzelaer, O, 1992. *Hollandia Compendium: a contribution to the history, archaeology, classification and lexography of a 150 ft. Dutch East Indiaman (1740-1750)*. Amsterdam: Elsevier Science B.V.
- Gibson, A, 2003. What do we mean by Neolithic settlement? Some approaches, 10 years on, in I Armit, E Murphy, E Nelis and D Simpson (eds), 138-145
- Gill, C, 1975. *The Isles of Scilly*, Newton Abbot
- Gillis, R, 1956. The Isles of Scilly Gigs, *Mariner's Mirror*, **42, 2**, 159
- Gillis, R, 1969. Pilot Gigs, *Mariner's Mirror*, **55, 2**, 117
- Gossip, J, forthcoming a. The evaluation of a multi-period prehistoric site and fogou at Boden Vean, St Anthony-in-Meneage, Cornwall, 2003, *Cornish Archaeol*
- Gossip, J, forthcoming b. Archaeological Investigations at Nancemere, Truro, Cornwall, 2002: a prehistoric and Romano-British landscape, *Cornish Archaeol*
- Gossip, J, and Jones, A, M, 2007. *Archaeological investigations of a later prehistoric and a Romano-British landscape at Tremough, Penryn, Cornwall*, Brit Arch Repts, Brit Ser, **443**, Oxford
- Gray, A, 1972. Prehistoric Habitation Sites on the Isles of Scilly, *Cornish Archaeol*, **11**, 19-49
- Gray, A, 1983. The animal remains, in Ashbee 1983a, 38-9
- Green, J, 1984. Further comment on the hand-guns ex Association. *IJNA*, **13, 4**, 334
- Green, M J, 1997. *Exploring the world of the Druids*, London
- Greig, J R A, and Keeley, H M, 1978. Appendix 2: A report on the soils and their pollen from north of the site at Nornour, Isles of Scilly, in Butcher 1978, 106-112
- Greeves, T, 2006-7. Who built the Daymark on St Martin's - and Why?, *Scillonian*, **266**, 164-7
- Greeves, T, 2010. Stonecutting on the Isles of Scilly, *Scillonian*, **271**, 151-3
- Grigson, G, 1948. *The Scilly Isles*, London
- Grimes, W F, 1960. *Salakee Down chambered cairn, St Mary's, Scilly, in W F Grimes Excavations on Defence Sites, 1939-1945: Mainly Neolithic-Bronze Age*, London
- Guthrie, A, 1969. Excavation of a settlement at Goldherring, Sancreed, 1958-61, *Cornish Archaeol*, **8**. 5-39
- Hambleton, E, 1999, *Animal Husbandry Regimes in Iron Age Britain*, Brit Arch Repts, Brit Ser, **282**, Oxford
- Harris, D, 1986. Cornwall in the Bronze Age, *Cornish Archaeol*, **25**, 81-110
- Hayes, J W, 1972. *Late Roman Pottery*, London
- Hayes, J W, 1980. *A Supplement to Late Roman Pottery*, London
- Hazell, Z, 2008. *Coastal peat resource database (Isles of Scilly)*, English Heritage

- Heath, R, 1750. *A Natural and Historical Account of the Islands of Scilly*, London (reprinted Newcastle-upon-Tyne, 1967)
- Heathcote, J A, 2000. Hillside Farm, Bryher, Isles of Scilly. Geoarchaeological assessment, in C Johns and J Ratcliffe, *Sword Burial at Hillside Farm, Bryher, Isles of Scilly: Assessment and Updated Project Design*, Truro (Historic Environment Service, Cornwall County Council), 69-72
- Hemer, K A, 2012. A bioarchaeological study of the human remains from the early medieval cemetery of Cronk Keeillans, Isle of Man, *Proc Isle of Man Nat Hist and Antiq Soc*, **12, 3**, 469-86
- Hencken, H O'N, 1932. *The Archaeology of Cornwall and Scilly*, London
- Hencken, H O'N, 1933. Notes on the Megalithic Monuments in the Isles of Scilly, *Ant Journ*, **13**, 17-38
- Herring, P, 1994. The cliff castles and hillforts of West Penwith in the light of recent work at Maen Castle and Treryn Dinas, *Cornish Archaeol*, **33**, 40-56
- Herring, P (ed), 2008. *Bodmin Moor: an archaeological survey: Vol 2 The Industrial and Post-medieval landscapes*, Truro (English Heritage)
- Herring, P, Thorpe, C, Quinnell, H, Reynolds, A, and Allan, J, 2000. *St Michael's Mount Archaeological Works 1995-98*, Truro (Historic Environment Service, Cornwall County Council)
- Hill, P, 1998. *Whithorn and St Ninian; the excavation of a monastic town, 1984-91*, Stroud
- Horn, W, White Marshall, J, and Rourke, G D, 1990. *The Forgotten Hermitage of Skellig Michael*, Berkeley
- Hosfield, R, Straker, V and Gardiner, P, 2008. Palaeolithic and Mesolithic, in C Webster (ed), 23-62
- Hudston, S, 2000. *Islomania*, Bridport
- Hutchinson, G, 1979. The Bar-Lug Pottery of Cornwall, *Cornish Archaeol* **18**, 81-103
- Hutchinson, G, 1998. *Medieval Ships and Shipping*, London
- Isles of Scilly Area of Outstanding Natural Beauty, 2010. *AONB management strategy, 2010-2014*, Hugh Town
- Ingrem, C, 2000. The animal bone from Romano-British deposits at Atlantic Road, Newquay, Cornwall, unpublished report for Cornwall Archaeological Unit
- Ingrem, C, 2002-3. Animal bone, in Johns 2002-3, 53-8
- Ingrem, C, in prep. The animal bone, in Taylor and Johns, forthcoming
- Innes, J, Blackford, J, and Davey, J, 2003. Dating the introduction of cereal cultivation to the British Isles: early palaeoecological evidence from the Isle of Man, *Journ Quaternary Science*, **18**, 603-613
- Isles of Scilly Area of Outstanding Natural Beauty, 2010. *AONB management strategy, 2010-2014*, St Mary's
- Jellicoe, G A, 1965. *A landscape charter for the Isles of Scilly*, London (report by Jellicoe and Coleridge, London, for Council of the Isles of Scilly)
- Johns, C, 2002-3. An Iron Age Sword and Mirror Burial from Bryher, Isles of Scilly, *Cornish Archaeol*, **41-42**, 1-79
- Johns, C, 2011. *The Isles of Scilly Historic Research Framework: Project Design*, Truro (Historic Environment Projects, Cornwall Council)

- Johns, C, Berry, E, and Edwards, B, 2007. *The Samson buildings project 2006-7, Samson, Isles of Scilly: lichen assessment, archaeological recording and building consolidation*, Truro (Historic Environment Projects, Cornwall County Council)
- Johns, C, and Fletcher, M, 2010. *The Garrison, St Mary's, Isles of Scilly: Conservation Plan*, Truro (Historic Environment Projects, Cornwall Council)
- Johns, C, Larn, R, and Tapper, B P, 2004. *Rapid Coastal Zone Assessment for the Isles of Scilly*, Truro (Historic Environment Service, Cornwall County Council)
- Johns, C, and Mulville, J, 2011. *Islands in a Common Sea: archaeological fieldwork in the Isles of Scilly September 2005*, Truro (Historic Environment Projects, Cornwall Council)
- Johns, C, and Sawyer, K, 2008. *Off islands quays refurbishments, Isles of Scilly, 2007: archaeological recording*, Truro (Historic Environment Service, Cornwall County Council)
- Johns, C, Sturgess, J, and Shepherd, F, 2010. *The new Five Islands School Base proposed site, Carn Gwaval, St Mary's Isles of Scilly: archaeological assessment, evaluation and building recording*, Truro (Historic Environment Projects, Cornwall Council)
- Johns, C, and Sawyer, K, 2005. *Lower Benham Battery, The Garrison, St Mary's, Isles of Scilly: archaeological watching brief*, Truro (Historic Environment Service, Cornwall Council)
- Johns, C, Mulville, J, and Berry, E, forthcoming a. *The Samson buildings project 2007-8, Samson, Isles of Scilly: archaeological recording and building consolidation*, Truro (Historic Environment Projects, Cornwall Council)
- Johns, C, Berry, E and Mulville, J, forthcoming b. *Tean farmhouses project 2007-8, Tean, Isles of Scilly: archaeological recording and building consolidation*, Truro (Historic Environment Projects, Cornwall Council)
- Johns, C, and Quinnell, H, forthcoming. Two nested Bronze Age vessels from St Agnes, Isles of Scilly, *Cornish Archaeol*
- Johnson, N, and Rose, P, 1994. *Bodmin Moor: An Archaeological Survey. Volume 1: the Human Landscape to c 1800*, English Heritage Archaeological Report, **24**, London
- Jones, A M, 1998-9. The Excavation of a Bronze Age Structure at Callestick, *Cornish Archaeol*, **37**, 5-55
- Jones, A M, 2005. *Cornish Bronze Age Ceremonial Landscapes, c 2500-1500 BC*, Brit Arch Repts, Brit Ser, **394**, Oxford
- Jones, A M, forthcoming. Hay Close, St Newlyn East: excavations by the Cornwall Archaeological Society, 2007, *Cornish Archaeol*
- Jones, A, and Quinnell, H, 2006. Cornish Beakers: new discoveries and perspectives, *Cornish Archaeol*, **45**, 31-70
- Jones, A M and Quinnell, H, 2011. The Neolithic and Bronze Age Periods in Cornwall, c 4000 cal BC to c 1000 cal BC: an overview of recent developments, *Cornish Archaeol*, **50**, 197-230
- Jones, A M, and Reed, S J, 2006. By land, sea and air: an Early Neolithic pit group at Porthscatho, Cornwall, and consideration of coastal activity during the Neolithic, *Cornish Archaeol*, **45**, 1-30
- Jones, A M, and Thomas, C, 2010. Bosiliack and a Reconsideration of Entrance Graves, *Proc Prehist Soc*, **76**, 271-96

- Jordan, D, Haddon-Reece, D, and Bayliss, A, 1994. *Radiocarbon dates from samples funded by English Heritage and dated before 1981*, London
- Keeley, H M, 1978. Soils, in Butcher 1978, 97-8
- Keeley, H M, 1983. Soil report for the site at Little Bay, St Martin's, Isles of Scilly, DoE, AML rep, **3846**
- Keepax, C A, and Morgan, G, 1978. Charcoal in Butcher 1978, 98
- Keepax, C A, forthcoming. Human bones from Grave III, in Neal forthcoming a
- Kingsford-Curram, R, 1963. Traces of the Roman (archaeological work in the Scillies by Guildford BS-AC), *Triton Magazine* (August)
- Kirk, T, 2004. Memory, tradition and materiality: the Isles of Scilly in context, in Cummings and Fowler (eds) 2004, 233-244
- Kirk, T, 2009. *A Research Framework for the Archaeology of the Isles of Scilly (P McMahon revision)*, Council of the Isles of Scilly
- Kirkham, G, 2003. *Cornwall and Scilly Urban Survey: Hugh Town, St Mary's, Isles of Scilly*, Truro (Historic Environment Service, Cornwall County Council)
- Kirkham, G, forthcoming. 'One principal street about three hundred and twenty yards long': the historical development and topography of Hugh Town, St Mary's, Isles of Scilly, *Cornish Archaeol*
- Kirkham, G, Shepherd, F, and Johns, C, 2011. *Field boundaries in the Isles of Scilly: historic environment study to inform management for conservation*, Truro (HE Projects, Cornwall Council)
- Knowles, D, and Haddock, R N, 1971. *Medieval Religious Houses*, Harlow
- Land Use Consultants and Cornwall Archaeological Unit, 1996. *Isles of Scilly Historic Landscape Assessment and Management Strategy*, Truro (Cornwall County Council)
- Larn, R, 1971. *Cornish Shipwrecks: The Isles of Scilly*, Newton Abbot
- Larn, R, 1984. Unidentified Artifacts I. *IJNA*, **13(1)**, 65
- Larn, R., 1985. Unidentified artefacts 6. *IJNA*, **14(3)**, 261-2
- Larn, R. 1993. *Shipwrecks in the Isles of Scilly*, Nairn
- Larn, R (ed), 1999. *Ships, Shipwrecks and Maritime Incidents around the Isles of Scilly*. Isles of Scilly Museum Publication, **3**, St Mary's
- Larn, R, and Larn, B, 1995. *Shipwreck Index of the British Isles Vol 1*. Lloyd's Register of Shipping, London
- Larn, R (ed), 2006. *Poor England has Lost so many Men*, St Mary's (Council of the Isles of Scilly)
- Lavery, B, 1987. *The Arming and Fitting of English Ships of War 1600-1815*, London
- Law, M, in prep. Shell, in Taylor and Johns in prep
- Laws, P, 1980. *The Buildings of Scilly*, Isles of Scilly Museum Publication, **12**, St Mary's and Redruth
- Le Carré, J, 1997. The inheritor, in R Cowan, *A century of images: photographs by the Gibson family*, London, 1-10
- Le Patourel, H E J, 1992. Ceramic horns, in D Gaimster and M Redknap (eds), *Everyday and Exotic Pottery From Europe c. 650-1900: Studies in Honour of John G. Hurst*, Oxford, 157-66

- Leung, R, nd [2010], *Historic Building Report: Former Lifeboat Station/Bulb Treating Station, Porthcressa Beach, St Mary's, Isles of Scilly*, St Mary's (Council of the Isles of Scilly)
- Lewis H A, 1948. *St Martin's, St Helen's and Tean (Isles of Scilly) in legend and history*, Truro (2nd revised ed)
- Light, J, forthcoming. Shell, in Ratcliffe, Johns and Young forthcoming
- Lister, A M, 1995. *Sea Levels and the Evolution of Island Endemics: the Dwarf Red Deer of Jersey*, Geological Soc Special Publications, **96**, 151-172
- Llewellyn, S, 2005. *Emperor Smith: The Man Who Built Scilly*, Wimborne Minster
- Locker, A, 1983. The bones, in Neal 1983, 66-70
- Locker, A, 1996. The Mammal Bones, in Ashbee 1996, 118-127
- Locker, A, forthcoming. The animal bone, in Ratcliffe, Johns and Young forthcoming
- Lotbiniere, S.D, 1984. Gunflint recognition, *IJNA*, **13(3)**, 206-09
- Lousley, J E, 1971. *The Flora of the Isles of Scilly*, Newton Abbot
- Lynch, F, 1975. Excavations at Carreg Samson megalithic tomb, Mathry, Pembrokeshire, *Archaeologia Cambrensis*, **124**, 15-35
- Macalister, R A S, 1945. *Corpus Inscriptionum Insularum Celticarum, Vol 1*, Dublin
- McArthur, R H, and Wilson, E O, 1968. *The Theory of Island Biogeography*, Princeton
- McAvoy, F, 1980. The Excavation of a Multi-period Site at Carngoon Bank, Lizard, *Cornish Archaeol*, **19**, 31-62
- McBride, P, and Larn, R, 1999. *Admiral Shovell's Treasure and Shipwreck in the Isles of Scilly*, Cornwall and Isles of Scilly
- McGrail, S, 2001. *Boats of the World from the Stone Age to Medieval Times*, Oxford
- McGrail, S, 2004. North-west European sea-going boats before AD 400, in Clark (ed) 2004, 51-66
- McGrail, S, 1998. *Ancient Boats in North-West Europe: The Archaeology of Water Transport to AD 1500*, Harlow
- MacPhail, R I, 1981. Soil report on Bar Point, St Mary's, Isles of Scilly, DoE, AML rep, **3299**
- McQuade, M, and O'Donnell, L, 2007. Late Mesolithic fish traps from the Liffey estuary, Dublin, Ireland, *Antiquity*, **81**, 569-584
- Mace, M, nd. *HMS Association: Sank 1707*, St Marys (Scillonian Diving Service)
- Madden, P, 1996. *Scilly's Building Heritage*, Truro
- Magalotti, L, 1821. Travels of Cosmo the Third, Grand Duke of Tuscany, through England, during the reign of King Charles the Second (1669), London
- Manske, K, Owoc, M A, Greek, M, Illingworth, and Advisio, J M, nd. *Island Threads: Bronze Age Textile Production and Identity on the Isles of Scilly, UK*. Poster in the Isles of Scilly Museum (Merceyhurst Archaeological Institute, Erie, Pennsylvania)
- Marsden, P, 1978. A reconstruction of the treasure of the *Amsterdam* and the *Hollandia*. *IJNA*, **7(2)**, 133-48
- Marshall, P, 2002-3. Radiocarbon dates, in C Johns, 23
- Marshall, P, and Bronk Ramsey, C, 2012. Par Beach, St Martin's, Isles of Scilly (Lyonesse Project): Radiocarbon Dating, unpublished English Heritage report

- Mason, H, 1984. The excavation of a cottage on Samson, Isles of Scilly, 1977, *Cornish Studies*, **11**, 49-68
- Mason, J, 1983. *Scallop and queen fisheries in the British Isles*, Fishing News Books
- Mason, H, and Hayton, C, 1977. Excavations on Samson, Isles of Scilly, Unpublished interim report
- Mathews, W H, 1922. *Mazes and Labyrinths*,
- Matthews, G F, 1960. *The Isles of Scilly: a constitutional, economic and social survey of the development of an island people from early times to 1900*, London
- Matthews, G K, 1965-66. A Complete Survey of Holdings, Tenements and Occupiers in Scilly 1829-31, Part 1, *Scillonian*, **164**
- Matthews, G K, 1966a. A Complete Survey of Holdings, Tenements and Occupiers in Scilly 1829-31, Part 2, *Scillonian*, **166**
- Matthews, G K, 1966b. A Complete Survey of Holdings, Tenements and Occupiers in Scilly 1829-31, Part 3, *Scillonian*, **167**
- Matthews, G K, 1967-68. A Complete Survey of Holdings, Tenements and Occupiers in Scilly 1829-31, Part 4, *Scillonian*, **168**
- Maybee, R, 1884. *Sixty-eight years' experience on the Scilly Islands*, Penzance
- Mays, S A, 1996. Healed limb amputations in human osteoarchaeology and their causes: a case study from Ipswich, UK, *Int Journ of Osteoarchaeology*, **6**, 101-13
- Mays, S, Turner-Walker, G, and Brown, K, 2002-3. Human bone, in Johns 2002-3, 20-3
- Medieval Pottery Research Group, 2011. *Research Framework for Post-Roman Ceramics*,
- Mercer, R J, 2003. The early farming settlement of south western England in the Neolithic, in Armit, Murphy, Nelis, and Simpson (eds) 2003, 56-70
- Miles, H, 1975. Barrows on the St Austell granite, Cornwall, *Cornish Archaeol*, **14**, 5-81
- Miles, T J, and Saunders, A D, 1971. King Charles's Castle, Tresco, Scilly, *Post-med Archaeol*, **4**, 1-30
- Milner, N, Craig, O, Bailey, G, Pedersen, K, and Andersen, S, 2004. Something fishy in the Neolithic? A re-evaluation of stable isotope analysis of Mesolithic and Neolithic coastal populations, *Antiquity*, **78**, 9-22.
- Morris, R, 1969. *Island Treasure: The Search for Sir Cloudesley Shovell's Flagship 'Association'*, London
- Morris, R, 1979. *HMS Colossus: the Story of the Salvage of the Hamilton Treasures*, London
- Morris, R, nd [1978]. *Treasure Trove Islands: the Scilly Isles*, Penzance
- Morris, R, 1982. The Dive which found Firebrand, *Subaqua Scene*, 8-9
- Morris, R, 1984a. Ferrous clib concretion on small guns. *IJNA*, **13(1)**, 65-71
- Morris, R, 1984b. Unidentified artefacts 2. *IJNA*, **13(3)**, 211-14
- Morris, R, 1984c. More finds from Scilly Islands wrecks 2, *IJNA*, **13(4)**, 329-33
- Mothersole, J, 1910. *The Isles of Scilly, Their Story, Their Folklore and Their Flowers*, London
- Mumford, C, 1967. *Portrait of the Isles of Scilly*, London

- Mulville, J, 2010. Wild Things? The prehistory and history of Red Deer on the Hebridean and Northern Isles of Scotland, in T O'Connor and N Sykes (eds), *Extinctions and Invasions: A Social History of British Fauna*, Bollington
- Mulville, J A, Dennis, I, Johns, C, Mills, S, Pannett, A, and Young, T, 2007. *Islands in a Common Sea: archaeological fieldwork in the Isles of Scilly 2006 (St Mary's and St Martin's)*, Cardiff Studies in Archaeology Specialist Rep, **27**, Cardiff
- Mulville, J A, and Sawyer, K, 2011. *Obadiah's Barrow, Knackyboy Cairn and Old Town Cist ORADS application*, Cardiff University
- Mulville, J A, and Sawyer, K, forthcoming. Radiocarbon determinations from, Knackyboy Cairn, St Martin's and Old Town Cist, St Mary's, Isles of Scilly, *Cornish Archaeol*
- Nance, R M, 1924. Troy Town, *Journ Roy Institution Cornwall*, **21**, 261-279
- Nayling, N, and Caseldine, A, 1997. Excavations at Caldicot, Gwent: Bronze Age palaeochannels in the lower Nedern Valley, CBA Res Rep, **108**, York
- Neal, D S, 1983. Excavations on a Settlement at Little Bay, St Martins, Isles of Scilly, *Cornish Archaeol*, **22**, 47-80
- Neal, D S, forthcoming a. The 1970/1 excavations at East Porth, Samson, *Cornish Archaeol*
- Neal, D S, forthcoming b. Miscellaneous objects of bronze, bone and glass, in Neal forthcoming a
- Neal, D S, forthcoming c. Objects of iron, in Neal forthcoming a
- Neal, D S, forthcoming d. The flints, in Neal forthcoming a
- Needham, S, 2009. Encompassing the sea: 'maritories' and Bronze Age interactions in P Clark (ed), *Bronze Age connections, cultural contact in prehistoric Europe*, Oxford, 12-37
- Noall, C, 1972. *Cornish Seines and Seiners: a history of the pilchard fishing industry*, Truro
- North, I W, 1850. *A Week in the Isles of Scilly*, Penzance and London (reprinted Truro 2006)
- Nowakowski, J, 1991. Trethellan Farm, Newquay: Excavation of a Lowland Settlement and Iron Age Cemetery. *Cornish Archaeol* **30**, 5-242
- Nowakowski, J, 1999. The Excavation of a Bronze Age Settlement at Stannon, St Breward, *Cornwall Archaeological Unit Excavation Bulletin*, 17 August 2000
- Nowakowski, J, 2001. Leaving Home in the Cornish Bronze Age: Insights into Planned Abandonment Processes, in J Brück (ed), *Bronze Age Landscapes*, Oxford
- Nowakowski, J, Quinnell, H, Sturgess, J, Thomas, C, and Thorpe, C, 2007. Return to Gwithian: shifting the sands of time. *Cornish Archaeology* **46**, 13-76
- Nowakowski, J A and Quinnell, H. 2011 *Trevelgue Head, Cornwall: the importance of C K C Andrew's 1939 excavations for prehistoric and Roman Cornwall*, Truro (Cornwall Council)
- Nowakowski, J, and Johns, C, forthcoming. *Bypassing Indian Queens, Cornwall, - Archaeological Excavations 1992-1994: Prehistoric and Romano-British settlements and landscapes*
- O'Connor, T P, and Kitchener, A C, 2010. Wild, domestic and feral cats, in T P O'Connor and N Sykes (eds), *Extinctions and Invasions: A social history of British fauna*, Oxford, 83-94
- O'Loughlin, T, 1997. Living in the Ocean, in C Bourke (ed), *Studies in the Cult of Saint Columba*, Dublin, 11-23

- O'Loughlin, T, 1999. Distant islands: the topography of holiness in the *Navigatio Sancti Brendani*, in M Glasscoe (ed), *The Medieval Mystical Tradition. England, Ireland and Wales*, Woodbridge, 1-20
- O'Loughlin, T, 2000. *Journeys on the Edges: The Celtic tradition*, London.
- O'Neil, B H St J, 1949a. Excavation of a Romano-British Hut in Scilly, *Scillonian*, **24**, 99, 163-164
- O'Neil, B H St J, 1949b. The Excavation of a Bronze Age House in Scilly, *Scillonian*, **24**, 99, 164-165
- O'Neil, B H St J, 1949c. *Isles of Scilly: Guide to Ancient Monuments*, HMSO, London
- O'Neil, B H St J, 1952. Excavations at Knackboy Carn, *Antiq Journ*, **32**, 21-34
- O'Neil, B H, St J, 1961. *Isles of Scilly MOW Guide*, London (HMSO, 2nd edtn)
- O'Neil, B H St J, nd a. Excavations at Par Beach, St Martin's Scilly, Site A. (unpublished archive transcript), National Monuments Records Office No 904
- O'Neil, B H St J, nd b. Excavations at Par Beach, St Martin's Scilly, Site C. (unpublished archive transcript), National Monuments Records Office No 904
- O'Neil, B H St J, nd c. Excavations at Par Beach, St Martin's Scilly, Site F. (unpublished archive transcript) National Monuments Records Office No 904
- O'Neil, B H St J, nd d. Excavation of May's Hill, St Martin's, Scilly. (unpublished archive transcript) National Monuments Records Office No 901
- O'Neil, B H St J, nd e. Excavation of Hillbenigates Cairn, St Martin's. (unpublished archive transcript) National Monuments Records Office No 897
- O'Neil, B H St J, nd f. Excavation of Hut I on Little Arthur, Scilly. (unpublished archive transcript) National Monuments Records Office No 899
- O'Neil, B H St J, nd g. Excavation of Hut I. Perpitch, St Martin's, Scilly. (unpublished archive transcript) National Monuments Records Office No 906
- O'Neil, B H St J, nd h. The Excavation of a Hut at English Island Cairn, St Martin's, Scilly. (unpublished archive transcript) National Monuments Records Office No 896
- O'Neil, B H St J, nd i. Excavation of a Hut at Little Bay, St Martin's, Scilly. (unpublished archive transcript) National Monuments Records Office No 900
- O'Neil, B H St J, nd j. Pernagiey, St Martin's, Scilly. (unpublished archive transcript) National Monuments Records Office No 905
- O'Neil, B H St J, nd k. Field Notebooks of Bryan O'Neil (unpublished archive transcript), National Monuments Records Office No 915
- O'Neil, H E. 1964. Excavation of a Celtic hermitage on St Helens, Isles of Scilly, 1956-58, *Archaeol Journ*, **121**, 40-69
- Orme, N, 2010. *The Victoria History of the Counties of England: a History of the County of Cornwall, Volume II, Religious History to 1560*, London
- Osborne, J P, 1990. *Scillonian War Diary 1914-18* (2 vols)
- Ottaway, B, and Roberts, B, 2008. The emergence of metalworking, in A Jones (ed) *Prehistoric Europe: theory and practice*, Oxford, 193-225
- Over, L, 1987. *The Kelp Industry in Scilly*, Isles of Scilly Museum Publication, **14**, St Mary's
- Owoc, M A, Adovasio, J M, Illingworth, J, Greek, M, and Manske, K, 2003. Perishables and Pots in Later Prehistory: Unravelling a Distinctive Scillonian Cultural

- Tradition. Lecture presented at the 68th Annual Meeting of the Society for American Archaeology, Milwaukee, Wisconsin
- Padel, O J, 1988. *A Popular Dictionary of Cornish Place-Names*, Penzance
- Pailler, Y, and Sheridan, A, 2009. Everything you always wanted to know about... La Néolithisation de la Grande-Bretagne et d'Irlande, *Bulletin de la Société Préhistorique Française*, **106**, 25-56
- Pannett, A, 2007. Isles of Scilly Museum Lithic Archive: morphology of the collection and potential for further work, in Mulville *et al* 1007, 35-7
- Parkes, C and Ratcliffe, J, 1990. *Early Batteries on the Garrison, St Mary's: Archaeological Fieldwork in the Isles of Scilly 1990*, Truro (Cornwall Archaeological Unit)
- Parkes Lees Architects Ltd, 2009-10. Buildings on Samson, Isles of Scilly: Proposals for Future Conservation. Reports, drawings and specifications for The Isles of Scilly Wildlife Trust
- Parslow, R, 2007. *The Isles of Scilly*, London
- Peacock, D, and Williams, D, 1986. *Amphorae and the Roman economy, an introductory guide*, London and New York
- Pearce, S M, 1978. *The kingdom of Dumnonia: studies in history and tradition in South-Western Britain, AD 350-1150*, Padstow
- Pearce, S, 2011. *The Archaeology of South Western Britain: Recent Research: Papers in Honour of Henrietta Quinnell*, Brit Arch Repts, Brit Ser, **548**, Oxford
- Penhallurick, R D, 2009. *ancient and early medieval coins from Cornwall and Scilly*, Royal Numismatic Society Special Publication, **45**, London
- Pernetta, J C, and Hanford, P T, 1970. Mammalian and avian remains from possible Bronze Age deposits on Nornour, Isles of Scilly, *Journal of Zoology*, **162**, 235-40
- Perez, M, forthcoming. A palaeoecological approach to understanding the impact of coastal change on past societies; using the Isles of Scilly as a case study, PHD thesis, University of Plymouth
- Pettitt, P, 2008. The British Upper Palaeolithic. In J Pollard (ed), *Prehistoric Britain*, Oxford , 18-57
- Pevsner, N, 1970. *The Buildings of England: Cornwall*, London (2nd ed revised by E Radcliffe)
- Piggott, S, 1941. Grooved Stone Cists, Scotland and the Scillies, *Antiquity*, **15**, 81-83
- Piggott, S, 1954. *The Neolithic Cultures of the British Isles*, Cambridge
- Pollard, J, and Healy, F (eds), 2008. Neolithic and Early Bronze Age, in Webster (ed) 2008, 75-102
- Pounds, N J G (ed), 1984. *The Parliamentary Survey of the Duchy of Cornwall*, Devon and Cornwall Record Society, ns, **27**, Exeter (2 vols)
- Pryor, F. 2004. Some thoughts on boats as Bronze Age artefacts, in P Clark (ed), 31-34
- Powell, T G E, 1941. A New Passage Grave Group in Southeastern Ireland, *Proc Prehist Soc*, **7**, 142-3
- Powell, T G E, 1969. Megalithic Enquiries in the West of Britain, Liverpool
- Quinnell, H, 1986. Cornwall during the Iron Age and the Roman period, *Cornish Archaeol*, **25**, 111-34
- Quinnell, H, 1991. Prehistoric and Roman Pottery, in Ratcliffe 1991, 73-83

- Quinnell H, 1994. Isles of Scilly Coastal Erosion Project 1989-93: The Pottery and Other Significant Artefacts from Sites with Recorded Stratigraphy: Archive Report, copy in Cornwall and Scilly HER, **ER 557**
- Quinnell, H, 2002-3a. The pottery in Johns 2002-3, 44-50
- Quinnell, H, 2002-3B. The flint, in Johns 2002-3, 44-50
- Quinnell, H, 2004. *Trethurgy: Excavations at Trethurgy Round, St Austell, Community and Status in the Roman and post-Roman Cornwall*, Truro (Cornwall County Council and English Heritage)
- Quinnell, H, 2009-10. The prehistoric pottery, in Taylor and Johns, 109-116
- Quinnell, H, 2010. Prehistoric and Roman pottery, in A M Jones and SR Taylor *Scarcewater, Pennance, Cornwall. Archaeological excavation of a Bronze Age and Roman landscape*, Brit Arch Repts, Brit Ser, **516**, Oxford, 93-113
- Quinnell, H, 2011. a summary of Cornish ceramics in the first millennium BC, *Cornish Archaeol*, **50**, 231-40
- Quinnell, H, in prep a. The prehistoric pottery, in Ratcliffe, Johns and Young forthcoming
- Quinnell, H, in prep b. Early Neolithic pottery, in Neal forthcoming a
- Quinnell, H, in prep c. Cambrian Trevisker paper
- Quinnell, H, in prep d. Stone, in Ratcliffe, Johns and Young forthcoming
- Quinnell, H, in prep e. Flint, in Ratcliffe, Johns and Young forthcoming
- Quinnell, H, in prep f. Pottery in Taylor and Johns in prep
- Quinnell, N, 1978. The Borlase Altar Stone, Tresco, Isles of Scilly, *Cornish Archaeol* **17**, 140-141
- Quinnell, N V, 2009-10. The archaeological revision of Scilly, 1978, by the Ordnance Survey: some recollections, *Cornish Archaeol*, **48-49**, 227-242
- Rainbird, P, 2007. *The Archaeology of Islands*, Cambridge: Cambridge University Press
- Ransley, J, Adams, J, Blue, L, Dix, J, and Sturt, F, (eds) 2011. *England's Maritime and Marine Historic Environment Resource Assessment and Research Agenda*, Oxford
- Ransom, V I, 1984. Catalogue of Perforated Implements from Cornwall and the Isles of Scilly, University of Exeter, unpublished M Phil thesis
- Ratcliffe, J, 1989. *The Archaeology of Scilly: an assessment of the resource and recommendations for its future*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J, 1991. *Lighting up the Past in Scilly: archaeological results from the 1985 electrification project*, Camborne and Truro (Institute of Cornish Studies and Cornwall Archaeological Unit)
- Ratcliffe, J, 1993. *Fieldwork in Scilly: 1991 and 1992*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J, 1994. *Fieldwork in Scilly: July 1993*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J, 1995. *Isles of Scilly Historic Landscape Assessment, report for Land Use Consultants*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J, 1997. *British Telecom Trenching on St Martin's, Isles of Scilly, Summer 1992: the results of the archaeological watching brief*, Truro (Cornwall Archaeological Unit)
- Ratcliffe J, 1999. *Project design and costing for analysis of finds from Porthcressa, St Mary's, Isles of Scilly*, Truro (Cornwall Archaeological Unit)

- Ratcliffe, J, and Johns, C, 2003. *Scilly's Archaeological Heritage*, Truro
- Ratcliffe, J, Johns, C, and Young, A, forthcoming. Results of archaeological recording during the Coast Protection Scheme at Porth Killier and Porth Coose, St Agnes, Isles of Scilly, 1996, *Cornish Archaeol*
- Ratcliffe, J, and Parkes, C, 1989a. *Fieldwork in the Isles of Scilly: March 1989*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J, and Parkes, C, 1989b. Lost and found on Chapel Down: idol speculation, *Cornish Archaeol*, **28**, 259-60
- Ratcliffe, J, and Parkes, C, 1990. *Archaeological Fieldwork in the Isles of Scilly: September 1989*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J, and Straker, V, 1996. *The Early Environment of Scilly*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J and Straker, V, 1997. The changing landscape and coastline of the Isles of Scilly: recent research, *Cornish Archaeol*, **36**, 64-76
- Ratcliffe, J, and Straker, V, 1998. *Old Town Bay Coast Protection Scheme, St Mary's, Isles of Scilly: Results of the Archaeological Recording*, Truro (Cornwall Archaeological Unit)
- Reece, R, 2011. The Coins, in Nowakowski and Quinnell, 245-56
- Reimer, P J, Baillie, M G L, Bard, E, Bayliss, A, Beck, J W, Bertrand, C J H, Blackwell, P G, Buck, C E, Burr, G S, Cutler, K B, Damon, P E, Edwards, R L, Fairbanks, R G, Friedrich, M, Guilderson, T P, Hogg, A G, Hughen, K A, Kromer, B, McCormac, G, Manning, S, Bronk Ramsey, C, Reimer, R W, Remmele, S, Southon, J R, Stuiver, M, Talamo, S, Taylor, F W, van der Plicht, J and Weyhenmeyer, C E. 2004. IntCal04 terrestrial radiocarbon age calibration, 0–26 cal kyr BP. *Radiocarbon*, 46(3), 1029–58
- Richards, C and Thomas, J, 1984. Ritual activity and structured deposition in later Neolithic Wessex, in R Bradley and J Gardiner (eds), *Neolithic Studies: a Review of Some Current Research*, Oxford, *Brit Arch Repts, Brit Ser*, **133**, 189-218
- Richards, M, and Hedges, R, 1999. A Neolithic revolution? New evidence of diet in the British Neolithic, *Antiquity*, **73**, 891-7
- Richardson, A, and Gill, C A, 1924. *Regional Architecture of the West of England*, London
- Rigold, S E, 1964. The coin, in O'Neil, 66
- Roberts H M, 2012. Optically Stimulated Luminescence (OSL) dating, in Charman *et al* 2012, 138-60
- Roberts, O, 2004. Round the headland or over the horizon? An examination of evidence for British prehistoric efforts to construct a seaworthy boat, in Clark (ed) 2004, 35-50
- Robinson, G, 2007. *The Prehistoric Island Landscape of Scilly*, *Brit Arch Repts, Brit Ser*, **447**, Oxford
- Roger, N, 2004. *The Command of the Ocean*, London
- Rogers, B, nd. *Excavation of HMS Association: Sank 1707, Diver's Report*, Scilly
- Rowley-Conwy, P, 2003. No fixed abode? Nomadism in the northwest European Neolithic, in G Burenhult and S Westergaard (eds), *Stones and bones: formal disposal of the dead in Atlantic Europe during the Mesolithic-Neolithic interface 6000-3000 BC*, *Brit Arch Repts, Int Ser*, **1201**, Oxford, 115-144

- Russell, V, 1980. *Isles of Scilly Survey*, St Mary's and Truro (Isles of Scilly Museum and the Institute of Cornish Studies)
- Sabin, D, and Donaldson, K, 2010. *Five Islands School, St Mary's, Isles of Scilly: Magnetometer and Earth Resistance Survey Report for Kier Western*, Archaeological Surveys Ltd, Ref no 319
- Samuels, J, 1975. A Coarse Storage Vessel in a Clay-lined Pit, Pendrathen, St Mary's, Isles of Scilly, *Cornish Archaeol*, **14**, 117
- Samuels, J, 1996. The Halangy Down pottery, in Ashbee 1996, 81-88
- Saunders, A, 1962. Harry's Walls, St Mary's, Scilly: a new interpretation, *Cornish Archaeol*, **1**, 85-91
- Saunders, A, 2006. *Excavations at Launceston Castle, Cornwall*, Society for Medieval Archaeology Monograph, **24**, Leeds
- Sawyer, K. 2008. *Abbey Farm, Tresco, Isles of Scilly: archaeological recording*, St Mary's (Katharine Sawyer)
- Sawyer, K, nd. Walk Around Hugh Town and the Garrison [leaflet], Isles of Scilly AONB
- Scaife, R G, 1984. A history of Flandrian vegetation in the Isles of Scilly: palynological investigation of Higher Moors and Lower Moors peat mires, St Mary's, *Cornish Studies*, **11**, 33-47
- Scaife, R, 2011. Environmental analysis: pollen, in Johns and Mulville, 17-18
- Schulting, R. 1998. Slighting the sea: the transition to farming in northwest Europe, *Documenta Praehistorica*, **25**, 203-18
- Schulting, R, Richards, M P, and Hedges, R E M, 2003. Sharp shift in diet at onset of Neolithic, *Nature*, **425**, 366
- Scourse, J D, 1985. Late Pleistocene Stratigraphy of the Isles of Scilly and Adjoining Regions, unpublished PhD thesis, University of Cambridge
- Scourse, J D (ed), 1986. *The Quaternary of the Isles of Scilly Field Guide*, Cambridge (Quaternary Research Association)
- Scourse, J D, 1991. Late Pleistocene stratigraphy and palaeobotany of the Isles of Scilly, *Philosophical Transactions of the Royal Society of London*, **334**, 405-488
- Scourse, J D, ed, 2006. *The Isles of Scilly: Field Guide*, London (Quaternary Research Association)
- Seaney, R J, 2010a. *The Druid Temple on St Mary's, Isles of Scilly*, Hawkhurst, (privately produced report)
- Seaney, R J, 2010b. *The High Stone, St Mary's, Isles of Scilly*, Hawkhurst, (privately produced report)
- Sedding, E H, 1909. *Norman Architecture in Cornwall. A Handbook to Old Cornish Ecclesiastical Architecture with Notes on Ancient Manor Houses*, London
- Sheridan, A, 2000. Achnacreebeag and its French connections: vive the 'auld' alliance, in J Henderson (ed), *The prehistory and early history of Atlantic Europe*, Brit Arch Repts, Int Ser, **861**, Oxford 1-16
- Sheridan, A, 2010. The neolithization of Britain and Ireland: the big picture, in B Finlayson and G Warren (eds), *Landscapes in Transition: understanding hunter-gatherer and farming landscapes in the early Holocene of Europe and the Levant*, Oxford, 89-105
- Sheridan, A, Schulting, R, Quinnell, H, and Taylor, R, 2008. Revisiting a small passage tomb at Broadsands, Devon, *Proc Devon Archaeol Soc*, **66**, 1-26

- Shiel, D, 1999. *Geophysical Survey Report 99/103. Dolphin Row, Tresco, Isles of Scilly*, Bradford (GSB Prospection)
- Smallwood, V, and Woodford, S, 2003. *Fragments from Sir William Hamilton's second collection of vases recovered from the wreck of HMS Colossus*, London
- Smith, A, 1863. Narration on the Discovery and Opening of a Kist-Vean on the Island of Samson at Scilly, 3rd September 1862, *Report of the Royal Institute of Cornwall*, **45**, 53-55
- Smith, G, 1984. Excavations on Goonhilly Down, The Lizard, 1981, *Cornish Archaeol*, **23**, 3-46
- Spence, G, 1792. *A Maritime Survey of Scilly*, London
- Stanbrook, E, 2008. *Bishop Rock Lighthouse*, Truro
- Stell, C, 1991. *An inventory of nonconformist chapels and meeting houses in south-west England*, London (HMSO)
- Stevens, T, 2007. *Wreck of Colossus: The find of a lifetime*, St Mary's
- Stevens, T, 2011. *The Search for the John*, St Mary's
- Stevens, T, and Cummings, E, 2008. *Ghosts of Rosevear and the Wreck of the Nancy Packet*, St Mary's
- Straker, V, 2002-3. Overview of the results of the environmental analyses, in Johns, 58-60
- Straker, V, Brown, A, Fyfe, R, Jones, J, and Wilkinson, J, 2008. Later Bronze Age and Iron age Environmental Background, in Webster (ed) 2008, 103-116
- Sturt, F. 2005. Fishing for Meaning: lived space and the early Neolithic of Orkney in V Cummings and A Pannett (eds) *Set in Stone: New Approaches to Neolithic Monuments in Scotland*, Oxford, 68-80
- Taylor, S R, and Johns, C, 2009-10. Archaeological recording of a multi-period site at Dolphin Town, Tresco, Isles of Scilly, 1999-2003, *Cornish Archaeol*, **48-59**, 99-125
- Taylor, S R, and Johns, C, in prep. *Archaeological investigations at Higher Town, St Agnes, Isles of Scilly 2009-10*, *Cornish Archaeol*
- Taylor, S, and Thorpe, C, 2008. Grass-marked pottery found at Trelissick, Feock, *Cornish Archaeol*, **47**, 179-82
- Tebbutt, C F, 1934. A cist in the Isles of Scilly, *Antiq J*, **14**, 302-4
- Thomas, A C, 1956. Excavations at Gwithian, Cornwall 1955: The Early Christian settlement, the Bronze Age barrow group, and medieval manor, *Proc West Cornwall Field Club*, ns, **1** (appendix)
- Thomas, A C, 1957. Some Post Roman Imported Sherds in Cornwall and their origin. *Proc West Cornwall Field Club*, ns, **2, 1**, 15-22
- Thomas, A C, 1959. Imported Pottery in Dark Age Western Britain, *Medieval Archaeol*, **3**, 89-111
- Thomas. A C, 1960a. People and pottery in Dark Age Cornwall. *Old Cornwall*, **5, 11**,
- Thomas, A C, 1960b. Excavations on Tean, Isles of Scilly, 1956 and problems of the Scillonian submergence, unpublished report, University of Edinburgh
- Thomas, A C, 1963. Unpublished material from Cornish Museums: 2 Gunwalloe pottery, Helston Museum. *Cornish Archaeol* **2**, 60 – 64
- Thomas, A C, 1966. The character and origins of Roman Dumnonia, in C Thomas, ed, *Rural settlement in Roman Britain*, CBA Res Rep, **7**, London, 74-98

- Thomas, A C, 1968. Grass marked pottery in Cornwall, in B Coles and D D A Simpson, eds, *Studies in Ancient Europe*, Leicester
- Thomas, A C, 1977. *The Book of the Church in Scilly*,
- Thomas, C, 1978. Imported Late-Roman Mediterranean pottery in Ireland and Western Britain: Chronologies and Implications, *Proc RIA*, **76, C**, 245-255
- Thomas, C, 1979. Three early accounts of the Isles of Scilly, Penzance
- Thomas, A C, 1981. *A Provisional List of Imported Pottery in Post-Roman Western Britain and Ireland*, Institute of Cornish Studies Special report, **7**, Truro
- Thomas, C, 1985. *Exploration of a drowned landscape: archaeology and history of the Isles of Scilly*, London
- Thomas, C, 1988a. *Views and Likenesses: Photographers and Their Work in Cornwall and Scilly 1839-1870*, Truro
- Thomas, A C, 1988b. The Context of Tintagel: a new model for the diffusion of post-Roman Mediterranean imports, *Cornish Archaeol*, **27**, 7-26
- Thomas, C, 1989. The Names of the Batteries on the Garrison, St Mary's, Isles of Scilly, in M Bowden, D Mackay and P Topping (eds), 251-9
- Thomas, A C, 1990. *Gallici Nautae de Galliarum Provinciis – A Sixth / Seventh Century Trade with Gaul Reconsidered*, *Medieval Archaeol*, **34**, 1-26
- Thomas, A C, 1991. Early Medieval Pottery, in J Ratcliffe, 87-92
- Thomas, A C, 1993. *Tintagel, Arthur and Archaeology*, London
- Thomas, A C, 2005. An interim assessment of Post 400, Pre 1200 Native Pottery, and Mediterranean and Gaulish Imported wares in Cornwall and Scilly, unpublished background paper, **3**
- Thomas, C, 2010. A preliminary note on a boat-decorated Bronze Age sherd from St Agnes, Isles of Scilly, privately circulated document
- Thomas, J, 2003. Thoughts on the 'repacked' Neolithic Revolution, *Antiquity*, **77**, 67-75
- Thomas, J, 2008. The Mesolithic-Neolithic transition in Britain, in J Pollard (ed), *Prehistoric Britain*, Oxford, 58-89
- Thorpe, C, 2003. *Mullion Church, Cornwall. Archaeological Watching Brief*, Truro (Historic Environment Service, Cornwall County Council)
- Thorpe, C, 2004. Finds summary report, in S R Taylor, *Dolphin Town Playing Field, Tresco, Isles of Scilly: Archaeological Watching Brief*, Truro (Historic Environment Service, Cornwall County Council)
- Thorpe, C, 2011. *The Early Medieval Native Pottery of Cornwall (c 400-1066 AD)*, in Pearce (ed) 2011, 151-158
- Threipland, LM, 1956. An Excavation at St Mawgan-in-Pyder, North Cornwall, *Archaeol Journ*, **113**, 33-81
- Tilley, C, 1995. Rocks as resources: landscapes and power, *Cornish Archaeol*, **34**, 5-57
- Tilley, C, and Bennett, W, 2001. An archaeology of supernatural places: the case of West Penwith, *Journ Royal Anthropological Inst*, **7, 2**, 335-363
- Todd, M, 1987. *A Regional History of England: the South West to AD 1000*, Harlow
- Tonkin, J C, and Tonkin, R W, 1882. *Guide to the Isles of Scilly*, Penzance
- Townsend, M, 1967. The Common Limpet (*Patella vulgata*) as a source of protein. *Folia Biologica*, **15, 3**, 343-351.

- Tresset, A, 2004. French Connections II: of cows and men, in Armit, Murphy, Nelis and Simpson (eds) 2004,
- Troutbeck, J, nd [c 1794]. *A survey of the ancient and present state of the Scilly Islands*, Sherborne
- Turk, FA, 1960. Deer on the Isles of Scilly, *127th report Royal Cornwall Polytechnic Soc*, 42-49
- Turk, F A, 1968. Notes on Cornish mammals in prehistoric and historic times 1, *Cornish Archaeol*, **7**, 73-9
- Turk, F A, 1971. Notes on Cornish mammals in prehistoric and historic times: 4. *Cornish Archaeol*, **10**, 79-91
- Turk, F A, 1978. The animal remains from Nornour: a synoptic view of the finds, in S A Butcher, 99-103
- Turk, F A, 1984a. A study of the vertebrate remains from May's Hill, St Martins, *Cornish Studies*, **11**, 76-77
- Turk, F A, 1984b. The Sub-Fossil Fauna of Cornwall and the Isles of Scilly, *Cornish Biological Records*, **7**
- Turk F, 1991. Report on Bone Samples from the Isles of Scilly, unpublished Specialist Report for English Heritage and Cornwall Archaeological Unit
- Tyacke, A, 2011. The work of the Portable Antiquities Scheme in Cornwall, *Cornish Archaeol*, **50**, 71-6
- Tyers, P, 1996. *Roman Pottery in Britain*, Batsford
- Vander Linden, M, 2007. What linked the Bell Beakers in third millennium BC Europe?, *Antiquity*, **81**, 343-352
- Van de Noort, R, 2004. An ancient seascape: the social context of seafaring in the Bronze Age, *World Archaeology*, **35**, 404-415
- Vaughan, D, 1984. Seeds, in J G Evans, 30
- Weatherhill, C, 1985. The Ships of the Veneti: a fresh look at the Iron Age tin ships, *Cornish Archaeol*, **24**, 163-69
- Webster, C J, (ed), 2008. *The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda*, Taunton (Somerset County Council)
- Wessex Archaeology, 2003. HMS Colossus Desk-Based Assessment, Unpublished report for English Heritage, Salisbury
- Wessex Archaeology, 2004. *St Mary's Harbour Geophysical Survey: Archaeological assessment of sidescan sonar and sub-bottom profiling data*, Salisbury
- Wessex Archaeology, 2005. *Pendratheren, St Mary's. Undesignated Site Assessment*, Salisbury
- Wessex Archaeology, 2006a. *Wheel Wreck, Isles of Scilly. Undesignated Site Assessment. Undesignated Site Assessment*, Salisbury
- Wessex Archaeology, 2006b. *Abbey Farm Redevelopment, Tresco: Report on desk-based research and building recording*, Salisbury
- Wessex Archaeology, 2007. *HMS Colossus Designated Site Assessment*. Unpublished report for English Heritage, Salisbury
- Wessex Archaeology, 2008. *Tresco quays watching briefs*, Salisbury
- White, W, 1872. *A Londoner's walk to the Land's End and a trip to the Scilly Isles*, London (3rd edn; first published 1855)

- Whitfield, H J, 1852. *Scilly and its legends*, Penzance and London
- Whittle, A, 1997. Moving on and moving around: Neolithic settlement mobility, in P Topping, (ed) *Neolithic landscapes*, 15-22, Oxford
- Whittle, A, Bayliss, A, and Healy, F, 2011. *Gathering time: dating the early Neolithic enclosures of southern Britain and Ireland*, Oxford
- Wilkinson, K and Straker, V, 2008. Neolithic and Early Bronze Age Environmental Background, in C J Webster (ed), 63-73
- Wood, I, 2010. A new light on Dark Age Gunwalloe: excavations summer 2010, interim report for the National Trust
- Wooding, J, 1996. Communication and Commerce along the Western Sealanes AD 400-800, *Brit Arch Reports, Int Ser*, **654**
- Woodley, G, 1822. *A View of the Present State of the Scilly Islands*, London
- Woodman, P, and McCarthy, M, 2003. Contemplating some awful(ly interesting) vistas: importing cattle and red deer into Prehistoric Ireland, in I Armit, E Murphy, E Nelis, and D Simpson (eds), 31-39
- Young, A, Ratcliffe, J, and Allan, J, 1993. *Cable laying operations at Star Castle, Isles of Scilly*, Truro (Cornwall Archaeological Unit)
- Young, T, 2011. Geophysical Survey, in C Johns and J Mulville, 15, 20-1
- Young, T, forthcoming. Geophysical Survey, in C Johns, J Mulville and E Berry, forthcoming b

11.3 Websites

- <http://www.imagesofengland.org.uk/> EH's online database of Listed Buildings
- <http://www.scilly.gov.uk/environment/conservation/SHERFfrontpage.htm>
- http://www.duchyofcornwall.org/aroundtheduchy_islesofscilly.htm
- <http://iosmuseum.org/>
- <http://iosmuseum.org/family.html>.
- <http://www.ios-aonb.info/>
- <http://www.ios-wildlifetrust.org.uk/>
- <http://scillypedia.co.uk/ScillyAtoZ.htm>

12 Project archive

The HE project number is **2010098**

The project's digital archive is housed at the offices of Historic Environment, Cornwall Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project file containing site records and notes, project correspondence and administration and copies of documentary/cartographic source material and full copies of the individual specialists' reports (file no 2010098).
2. English Heritage/ADS OASIS online reference: cornwall2-85996

This report text is held in digital form as: G:\CAU\HE Projects\Sites\Scilly\Scilly Historic Environment Research Framework 2010098\Final SHERF Report

The documentary archive is deposited at the Isles of Scilly Museum, Church Street, St Mary's. Isles of Scilly.



Isles of Scilly Historic Environment Research Framework

Resource Assessment and Research Agenda



Historic Environment Projects



Isles of Scilly Historic Environment Research Framework

Resource Assessment and Research Agenda

Client	English Heritage
Report Number	2012R070
Date	18/12/2012
Status	Final
Report author(s)	Charles Johns (ed)
Checked by	Andrew Young
Approved by	Dave Hooley

Historic Environment, Cornwall Council
Kennall Building, Old County Hall, Station Road, Truro, Cornwall, TR1 3AY
tel (01872) 323603 fax (01872) 323811 E-mail hes@cornwall.gov.uk
www.cornwall.gov.uk

Acknowledgements

This study was commissioned by English Heritage; with contributions from the Isles of Scilly AONB Unit, the Council of the Isles of Scilly and the Duchy of Cornwall.

Kathy Perrin, formerly Local Authority Historic Environment Liaison, English Heritage, provided advice and guidance during the early stages of the project which was continued by the Project Advisory Group and the many contributors, who are listed and acknowledged in the report. The English Heritage Project Assurance Officers were Helen Keeley and Dave Hooley.

Within Historic Environment, Cornwall Council, the Project Manager was Charles Johns, Jane Powning produced the distribution maps and Bryn Tapper, Pete Dudley and Francis Shepherd produced the sea-level rise maps.

The views and recommendations expressed in this report are those of Historic Environment Projects and are presented in good faith on the basis of professional judgement and on information currently available.

Freedom of Information Act

As Cornwall Council is a public authority it is subject to the terms of the Freedom of Information Act 2000, which came into effect from 1st January 2005.



Historic Environment, Cornwall Council is a Registered Organisation with the
Institute for Archaeologists

Cover illustration

Bant's Carn entrance grave, St Mary's, Isles of Scilly (photo: Cornwall Council)

© English Heritage 2012

No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without the prior permission of the publisher.

Contents

1	Executive summary	15
2	Introduction to the Project and the Islands	17
2.1	Introduction to the Project	17
2.1.1	Project background	17
2.1.2	Aims and objectives	17
2.1.3	Methodology	17
2.1.4	Note on radiocarbon dates in this report	18
2.2	Introduction to the Islands	19
2.2.1	Geology	19
2.2.2	Topography	20
2.3	History of local government in the Islands	22
2.4	Tenure	23
2.5	Past and present work in Scilly	23
2.5.1	Antiquarians and archaeologists	23
2.5.2	Geophysical survey	26
2.5.3	Environmental studies	27
2.5.4	Osteological faunal remains	27
2.5.5	Submergence studies	28
2.5.6	Maritime	29
2.5.7	Unpublished fieldwork	29
2.6	Sources	29
2.6.1	Published sources	29
2.6.2	Cartographic sources	30
2.6.3	Pictorial sources	31
2.6.4	Photographic sources	31
2.7	Historic Environment designations	32
2.7.1	World Heritage Sites	32
2.7.2	Scheduled Monuments	32
2.7.3	English Heritage Guardianship sites	32
2.7.4	Listed Buildings	34
2.7.5	Registered Parks and Gardens	34
2.7.6	Registered Battlefields	34
2.7.7	Protected Wrecks	34
2.8	Other Designations	35
2.9	Other English Heritage National Programmes	35
2.9.1	Extensive Urban Surveys	35
2.9.2	Rapid Coastal Zone Assessment Surveys	36
2.9.3	Historic Landscape Characterisation	36
2.9.4	Historic Seascape Characterisation	36
2.9.5	National Mapping Programme	36
2.10	Air photographs and LIDAR	36
2.11	Portable Antiquities Scheme	36
2.12	Historic Environment Records	36
2.12.1	The Cornwall and Scilly Historic Environment Record	36
2.12.2	The National Monument Record	37
2.12.3	The United Kingdom Hydrographic Office	37
2.13	Museums and archives	37
2.13.1	The Isles of Scilly Museum	37

2.13.2	The Royal Cornwall Museum	38
2.13.3	Other archives	39
2.14	Approaches to the study of the historic environment of islands	39
3	Palaeolithic and Mesolithic	42
3.1	Introduction	42
3.2	Palaeolithic (c 700,000 – 10,000 BP)	42
3.2.1	Landscape and environmental background	42
3.2.2	Palaeolithic archaeology	42
3.2.3	The Isles of Scilly resource: aspects and prospects	43
3.3	Mesolithic (c10,000-6000 BP)	44
3.3.1	Landscape	44
3.3.2	Environmental background	45
3.3.3	The Isles of Scilly resource: aspects and prospects	46
3.3.4	Animals	47
3.3.5	Transport	48
3.4	Scientific dating	48
3.4.1	Radiocarbon dates	48
3.4.2	OSL dating	51
4	Neolithic and Early Bronze Age	52
4.1	Introduction	52
4.2	Chronology	52
4.3	Environmental background	52
4.4	Landscape	55
4.4.1	The landscape context of monuments	55
4.4.2	The appropriation of natural topographic features	57
4.4.3	Settlement	58
4.5	The material world	59
4.5.1	Material culture	59
4.5.2	Material extraction and artefact production	59
4.5.3	Art	64
4.5.4	Subsistence	64
4.5.5	Transport	64
4.6	Social relations	66
4.7	Monumentality, ritual and burial	66
4.7.1	Entrance graves	66
4.7.2	Cairns and cists	70
4.7.3	Standing stones and stone rows	71
4.7.4	Pits	73
4.8	National and international context	74
4.8.1	Introduction	74
4.8.2	The Mesolithic/Neolithic transition	74
4.8.3	Continuing Neolithic and Early Bronze Age maritime connections	74
4.8.4	Diet and taskscapes	75
4.8.5	Summary	76
4.9	Scientific dating	76
4.9.1	Radiocarbon dates	76
4.9.2	OSL dating	78
5	Later Bronze Age and Iron Age	79

5.1	Introduction	79
5.2	Environmental background	79
5.3	Middle and Late Bronze Age (1500 – 800 BC)	81
5.3.1	Chronology	81
5.3.2	Landscape	81
5.3.3	Settlement	81
5.3.4	Field systems	84
5.3.5	The material world	86
5.3.6	Subsistence	89
5.3.7	Transport	92
5.3.8	Social relations	93
5.3.9	Ritual and religion	93
5.4	The Iron Age (c 800 BC – AD 43)	94
5.4.1	Chronology	94
5.4.2	Landscape	94
5.4.3	Settlement	96
5.4.4	Field systems	96
5.4.5	Cliff castles	96
5.4.6	The material world	97
5.4.7	Subsistence	99
5.4.8	Transport	100
5.4.9	Ritual and burial	100
5.5	Human osteological remains	102
5.6	Scientific dating	103
5.6.1	Radiocarbon dates	103
5.6.2	OSL dating	106
5.6.3	Magnetic dates	107
6	Romano-British (AD 43 – 410)	108
6.1	Introduction	108
6.2	Landscape and environmental background	108
6.3	Chronology	109
6.4	Settlement	109
6.5	The material world	110
6.5.1	Metalwork	110
6.5.2	Glass and amber	114
6.5.3	Ceramics	114
6.5.4	Bone	116
6.5.5	Flint and stone	116
6.6	Subsistence	116
6.7	Transport	116
6.8	Social relations	117
6.9	Religion and ritual	117
6.10	Scientific dating	118
6.10.1	Radiocarbon dates	118
6.10.2	OSL dating	119
7	Early medieval (410 – 1066)	120
7.1	Introduction	120
7.2	Landscape and environmental background	120

7.3	Chronology	121
7.4	Settlement	121
7.5	The material world	121
7.5.1	Metalwork	121
7.5.2	Glass	121
7.5.3	Pottery	121
7.5.4	Worked bone	125
7.5.5	Flint	126
7.5.6	Industry	126
7.5.7	Subsistence	126
7.6	Transport	128
7.7	Social relations	128
7.8	Religion and ritual	128
7.8.1	Chapels and hermitages	129
7.9	Human osteoarchaeology	132
7.10	Discussion	133
7.11	Scientific dating	133
7.11.1	Radiocarbon dates	133
7.11.2	OSL ages	135
8	Medieval (1066 – 1547)	136
8.1	Introduction	136
8.2	Landscape and environmental background	136
8.3	Chronology	137
8.4	The material world	137
8.4.1	Settlement	137
8.4.2	Subsistence	138
8.4.3	Artefacts	139
8.5	Communications, transport and trade	141
8.5.1	Shipping	141
8.5.2	Pirates and lawlessness	142
8.6	Social life	143
8.7	Religion and ritual	144
8.7.1	St Nicholas Priory	144
8.7.2	Churches and chapels	145
8.8	Human osteological remains	148
8.9	Defence and warfare	148
8.10	Scientific dating	149
8.10.1	Radiocarbon dates	149
8.10.2	OSL dating	149
9	Post-medieval and modern (1547-present)	150
9.1	Introduction	150
9.2	Environment and landscape	150
9.3	Material culture	152
9.3.1	Ceramics	152
9.3.2	Other artefacts	153
9.3.3	Building materials	154

9.4	Identities	155
9.5	Food production	156
9.5.1	Farming	156
9.5.2	Fishing	158
9.6	Settlement	159
9.6.1	Introduction	159
9.6.2	The traditional post-medieval buildings of Scilly	160
9.6.3	The historical development and topography of Hugh Town	169
9.6.4	The Samson buildings	175
9.7	Designed landscapes	177
9.8	Transport and communications	178
9.8.1	Shipping	178
9.8.2	Navigation and pilotage	182
9.8.3	Packets and passenger boats	183
9.8.4	Maritime infrastructure	184
9.8.5	Telegraph and telephones	187
9.8.6	Air travel	187
9.9	Technology and production	188
9.9.1	Stonecutting	188
9.9.2	Limeburning	188
9.9.3	Kelp industry	189
9.9.4	Shipbuilding	189
9.9.5	Tin	191
9.9.6	Flower industry	191
9.10	Trade and interaction	191
9.10.1	Piracy and privateering	191
9.10.2	Smuggling	191
9.10.3	The nineteenth century Scillonian merchant fleet	192
9.10.4	Tourism	192
9.11	Religion and ritual	193
9.11.1	Anglican	193
9.11.2	Methodist	193
9.11.3	Baptist	193
9.11.4	Roman Catholic	193
9.11.5	Institutional ritual	194
9.12	Social provision	194
9.12.1	Water supply, sewerage and drainage	194
9.12.2	Heat, light and public power supply	194
9.12.3	Waste disposal, burial and cremation	194
9.12.4	Dealing with poverty, sickness and disability	194
9.12.5	Emergencies and law and order	196
9.12.6	Education and learning	197
9.12.7	Recreation and leisure	197
9.13	Defence and warfare	197
9.13.1	Fortifications	198
9.13.2	Flying Boat stations	199
9.14	Scientific dating	200
9.14.1	Radiocarbon dates	200
9.14.2	OSL dating	200
10	A Research Agenda for the historic environment of the Isles of Scilly	201
10.1	Introduction	201

10.2	Research Themes and Aims	201
10.2.1	Methodology	201
10.2.2	Science	213
10.2.3	Settlement	216
10.2.4	Maritime	219
10.2.5	Production and trade	220
10.2.6	Social Relations	225
10.2.7	Religion and Ritual	225
10.2.8	Defence and Conflict	227
10.3	Appendix: Research themes and aims by period	229
11	References	238
11.1	Primary sources	238
11.2	Publications	241
11.3	Websites	263
12	Project archive	263

List of Figures

Fig 2.1	Location map – the Isles of Scilly
Fig 2.2	Areas of the five largest islands
Fig 2.3	The Isles of Scilly
Fig 2.4	Map of the Isles of Scilly Wildlife Trust’s holding
Fig 2.5	All sea-level data for Scilly
Fig 2.6	Map of Scilly c 1585
Fig 2.7	Distribution of Scheduled Monuments in the Isles of Scilly
Fig 2.8	Distribution of Listed Buildings in Scilly
Fig 2.9	The Little Gannick or Wheel Wreck
Fig 2.10	Distribution of NMR records for the Isle of Scilly
Fig 3.1	The penknife point from Scilly
Fig 3.2	Distribution of Palaeolithic and Mesolithic sites recorded in the HER
Fig 3.3	Inferred submergence model c 7000 BC
Fig 3.4	Mesolithic submerged forest in St Mary’s Roads
Fig 3.5	Detail from the cliff section at Old Quay, St Martin’s
Fig 3.6	List of Palaeolithic and Mesolithic radiocarbon dates
Fig 3.7	List of Palaeolithic and Mesolithic OSL ages
Fig 4.1	Inferred submergence model c 4000 cal BC
Fig 4.2	Inferred submergence model c 2500 cal BC
Fig 4.3	Distribution of Neolithic sites recorded in the HER
Fig 4.4	Distribution of entrance graves and cairns in Scilly
Fig 4.5	Buzza Hill entrance grave and Hugh Town
Fig 4.6	Possible propped stone on Gugh
Fig 4.7	Neolithic axe or adze found on the west shoreline of Bryher

- Fig 4.8 The 'Giant's Grave', Porth Hellick, St Mary's
- Fig 4.9 Plan of cairns on Shipman Head Down, Bryher
- Fig 4.10 Standing stones on Gugh and Mount Flagon, St Mary's
- Fig 4.11 Field boundary and the possible stone row on Par Beach, St Martin's
- Fig 4.12 List of Neolithic and Early Bronze Age radiocarbon dates
- Fig 4.13 List of Neolithic and Early Bronze Age OSL ages
- Fig 5.1 Bronze Age sites recorded in the HER
- Fig 5.2 Inferred submergence model c 2500 BC
- Fig 5.3 Sketch reconstruction of the settlement at Nornour
- Fig 5.4 Excavation of a Late Bronze house at Higher Town, St Agnes
- Fig 5.5 Field boundary on Gugh
- Fig 5.6 The intertidal stone walls on Samson Flats
- Fig 5.7 The St Agnes 'boatsherd'
- Fig 5.8 Inferred submergence model c 700 BC
- Fig 5.9 Distribution of Iron Age and Romano-British sites recorded in the HER
- Fig 5.10 Reconstruction of the Iron Age/Romano-British settlement on Bryher
- Fig 5.11 Giant's Castle on St Mary's in the early twentieth century
- Fig 5.12 The Bryher sword and mirror
- Fig 5.13 The Iron Age sword and mirror cist burial at Hillside Farm, Bryher
- Fig 5.14 The statue menhir from St Martin's
- Fig 5.15 List of Later Bronze Age and Iron Age radiocarbon dates
- Fig 5.16 List of Later Bronze Age and Iron Age OSL ages
- Fig 5.17 Details of magnetic and chronological data from Little Bay, St Martin's
- Fig 6.1 Iron Age and Romano-British sites recorded in the HER
- Fig 6.2 Courtyard house at Halangy Down
- Fig 6.3 Sea leopard brooch from Nornour
- Fig 6.5 Comparison of coins from Trevelgue, Carvossa and Nornour
- Fig 6.5 Roman altar from Mount Holles
- Fig 6.6 List of Romano-British radiocarbon dates
- Fig 6.7 List of Later Romano-British OSL ages
- Fig 7.1 Early medieval sites recorded in the Cornwall and Scilly HER
- Fig 7.2 E ware from East Porth, Samson
- Fig 7.3 Inscribed tombstone in Tresco Abbey Gardens
- Fig 7.4 Two of the Early Christian burials from Tean
- Fig 7.5 St Helen's chapel
- Fig 7.6 Possible stone font from East Porth, Samson
- Fig 7.7 Olaf Tryggvason and the soothsayer
- Fig 7.8 List of early medieval radiocarbon dates

Fig 7.9 List of early medieval OSL ages

Fig 8.1 Inferred submergence model c 1066

Fig 8.2 Distribution of medieval sites recorded in the HER

Fig 8.3 The medieval quay at Old Town

Fig 8.4 William Borlase's drawing of the ruins of St Nicholas

Fig 8.5 Priors of Scilly

Fig 8.6 Borlase's drawing of the arches in St Helen's Church

Fig 8.7 Plan of the St Helen's ecclesiastical complex

Fig 8.8 Ennor Castle

Fig 8.9 List of medieval radiocarbon dates

Fig 9.1 Post-medieval sites recorded in the HER

Fig 9.2 Inferred submergence model c 1540

Fig 9.3 An early nineteenth-century reproduction of a 1669 view of Hugh Town

Fig 9.4 William Borlase's depiction of Hugh Town in 1752

Fig 9.5 Hugh Town on the 1st edition Ordnance Survey map c 1890

Fig 9.6 House C on Samson

Fig 9.7 Wooden figurehead from the SS Thames in Tresco Abbey Gardens

Fig 9.8 Known investigated and/or salvaged wrecks in Scilly

Fig 9.9 Comparison of English protected wreck sites with those in Scilly

Fig 9.10 Lighthouses and daymarks in Scilly

Fig 9.11 NMR records for crash sites of identified aircraft around Scilly

Fig 9.12 Shipbuilding on Porthcressa, St Mary's, c1870

Fig 9.13 Star Castle and the Garrison

Fig 9.14 List of post-medieval and modern radiocarbon dates

Fig 9.15 List of post-medieval and modern OSL ages

Abbreviations

AONB	Area of Outstanding Natural Beauty
Bcd	Below Chart Datum
CEP	Coastal Erosion Project 1989-93
CIOS	Council of the Isles of Scilly
CISMAS	Cornwall and Isles of Scilly Maritime Archaeological Society
CRO	Cornwall County Record Office
EH	English Heritage
HER	Cornwall and the Isles of Scilly Historic Environment Record
HE	Historic Environment, Cornwall Council
ICS	Institute of Cornish Studies
IMAG	Islands Maritime Archaeological Group
IOSM	Isles of Scilly Museum
IOSWT	Isles of Scilly Wildlife Trust
LBAPW	Late Bronze Age Plainware
MBA	Middle Bronze Age
MHWS	Mean High Water Springs
NGR	National Grid Reference
OS	Ordnance Survey
OSL	Optically Stimulated Luminescence dating
PJG	Plain Jar Group
PRN	Primary Record Number in Cornwall HER
RCM	Royal Cornwall Museum, Truro
RCHME	Royal Commission on the Historical Monuments (England)
RIC	Royal Institution of Cornwall
SHERF	Scilly Historic Environment Research Framework
SSSI	Site of Special Scientific Interest
SWARF	South West Archaeological Research Framework
SWD	South West Decorated (Ware)

Contributors to the project

Individuals

John Allan, Exeter Archaeology	Daniel Miles, English Heritage
Alex Bayliss, English Heritage	Steve Mills, Cardiff University
Eric Berry, historic buildings consultant	Jacqui Mulville, Cardiff University
Eleanor Breen, Council of the Isles of Scilly	Amelia Pannett, Cadw
Allan Brodie, English Heritage	Marta Perez, Plymouth University
Sarnia Butcher, consultant	Robert Platts, consultant
Kevin Camidge, maritime archaeologist	Henrietta Quinnell, consultant
Dan Charman, University of Exeter	Paul Rainbird, consultant
Ian Dennis, Cardiff University	Helen Roberts, Aberystwyth University
Ralph Fyfe, Plymouth University	Gary Robinson, Bangor University
Duncan Garrow, Liverpool University	Niall Sharples, Cardiff University
Tom Greeves, consultant	Katharine Sawyer, archaeologist
Charles Johns, Cornwall Council	Robert Scaife, University of Southampton
Andy Jones, Cornwall Council	Fraser Sturt, University of Southampton
Trevor Kirk, Isles of Scilly AONB Unit	Michael Tangye, consultant
Graeme Kirkham, Cornwall Council	Bryn Tapper, Cornwall Council
Rachel Leung, Cotswold Archaeology	Sean R Taylor, Cornwall Council
Jane Marley, Royal Cornwall Museum	Charles Thomas, consultant
Peter Marshall, English Heritage	Carl Thorpe, Cornwall Council
Amanda Martin, Isles of Scilly Museum	Sue Watts, consultant

Organisations

Cornwall Archaeological Society	Isles of Scilly Museum
Council for British Archaeology, South West	Royal Cornwall Museum
English Heritage	

Resource Assessment Seminar

The following attended the seminar in Exeter on 10 December 2011: Allan Brodie, John Allan, Kevin Camidge, Tom Greeves, Philip Hygate, Stephen Jackson, Charles Johns, Nick Johnson, Andy Jones, Phil Markham, Henrietta Quinnell, Trevor Kirk, Graeme Kirkham, Jane Marley, Amanda Martin, Phil McMahon, Paul Rainbird, Katharine Sawyer, Elizabeth Stanbrook, Sean Taylor, Sue Watts

Project Advisory Group

Eleanor Breen, Council of the Isles of Scilly	Phil McMahon, English Heritage
Alyson Cooper, Cornwall Council	Jane Marley, Royal Cornwall Museum
Charles Johns, Cornwall Council	Caradoc Peters, CBA SW
Nicholas Johnson	Trevor Kirk, Isles of Scilly AONB Unit

1 Executive summary

This report presents the results of the first two stages of the Scilly Historic Environment Research Framework (SHERF), the Resource Assessment and Research Agenda. SHERF was funded by English Heritage with contributions from the Isles of Scilly AONB Unit, the Council of the Isles of Scilly and the Duchy of Cornwall and has as its aim the provision of a structure in which to make decisions about future historic environment research. It is part of an English Heritage initiative to prepare a series of research frameworks for the whole country.

The Resource Assessment is a comprehensive overview of the Islands from the Palaeolithic to the present day, which aims to provide an accessible and up-to-date review of the current state of knowledge about the historic environment. It also aims to define the character of the resource and to act as a reference to inform decisions on the future of that resource. The Research Agenda highlights the major gaps in our knowledge and also areas where Scilly's historic environment has the potential to contribute to national and international research questions.

In order to make SHERF as comprehensive as possible the work was carried out by a large number of people with research interests in Scilly. The reports originated from a smaller number who prepared draft documents for each period. The membership of these period groups was drawn from all sectors of the archaeological community in order to get as wide a view of the issues as possible. The draft documents were posted on the website of the Council of the Isles of Scilly and details circulated, with the intention of including all those working, researching or just interested in the archaeology of the Islands. As part of the process a seminar was held to discuss the Resource Assessment and the Research Agenda, which provided a forum for discussion that contributed greatly to the quality of the final document. The final stage of the project, the Research Strategy, will be developed in a similar way and published separately.

Situated some 45km south-west of Land's End, Scilly is a unique environment of exceptional quality, with the relationship between the land and sea providing a very strong and distinctive cultural identity. The Islands in their current form are a result of past marine transgressions which flooded early sites. They are therefore a valuable laboratory for studying continuous sea-level rises within an historical context. Scilly's situation as the westernmost anchorage and the first/last landfall of the south-western approaches has shaped the Islands socially, economically and culturally and also the nature of their archaeological record. This record holds significance in its own right, as well as playing a part in nationally and internationally significant stories of colonisation, travel, trade and conflict.

In spite of its small size – equivalent to a single mainland parish - Scilly is noted for the richness and variety of its historic environment, with over 80 Bronze Age entrance graves and many other prehistoric monuments, including settlement sites and field systems. The Islands' distinctive Iron Age cist burial tradition includes the Bryher sword and mirror burial, a discovery of international importance for the study of the development of Insular Celtic art. The enigmatic Roman shrine on the little island of Nornour produced a huge array of brooches and the largest collection of Roman coins in Cornwall and Scilly. During the early medieval period the Islands were home to several ecclesiastical hermitages and in the medieval period rule was divided between the monks of Tavistock priory on Treco and the lay lords on St Mary's with their castle at Old Town. St Mary's Garrison, which developed around Star Castle built in 1593-4, has been described as probably the most impressive work of its kind extant in England because of the state of preservation and complexity of its early fortifications.

Research into the historic environment is not static but it is hoped that this report provides an overall snapshot of our understanding of Scilly's historic environment at the beginning of the second decade of the twenty-first century and will provide a focus and catalyst for future research.

2 Introduction to the Project and the Islands

Charles Johns with contributions from John Allan, Eleanor Breen, Allan Brodie, Andy M Jones, Trevor Kirk, Amanda Martin, Jane Marley, Peter Marshall, Jacqui Mulville, Paul Rainbird, Katharine Sawyer, Fraser Sturt and Anna Tyacke.

2.1 Introduction to the Project

2.1.1 Project background

Following the circulation of the draft version of the South West Archaeological Research Framework (SWARF) in 2007, representatives of the Planning and Development Department of the Council of the Isles of Scilly (CIOS) and the Historic Environment Service, Cornwall County Council (now Historic Environment, Cornwall Council - HE), met to discuss the prospect that the South West region's research framework could act as a catalyst for the production of a research framework for the historic environment of Scilly.

Subsequent discussions with English Heritage (EH) confirmed the need for a specific research agenda for Scilly because the resourcing of historical environment fieldwork and the management of historic environment resources on the Islands can only be effectively achieved if the special circumstances of the islands are taken into account. While it is fully acknowledged that Scilly is part of the South West region, the Islands also enjoy historical, cultural and social links with the wider world, including northern France, Wales and Ireland. The proposed research framework would take full account of the historical and geographical context of the Islands, yet would also serve the additional function of identifying island-specific research priorities that can drive forward historic environment fieldwork, research and management on Scilly.

These discussions resulted in an initial draft project outline (Kirk 2009) which was developed into a detailed MoRPHE-compliant project design for the preparation of the research framework (Johns 2009). The Scilly Historic Environment Research Framework (SHERF) was subsequently commissioned by English Heritage through the Historic Environment Enabling Programme (HEEP) in October 2010.

2.1.2 Aims and objectives

The overall aim of the project was to define a research framework for the historic environment of Scilly. The research framework recognises the diversity of the historic environment and among the aspects covered are maritime archaeology and infrastructure, historic buildings and palaeoecology. The project has sought to involve the local and wider research community in this process so that there is a sense of community ownership of the research framework.

2.1.3 Methodology

The preparation of the research framework is a partnership between English Heritage, the Council of the Isles of Scilly, the Duchy of Cornwall, Historic Environment, Cornwall Council, and the local and wider research community. The methodology follows the three-stage procedure outlined in *Frameworks for our Past* (English Heritage 1996) and used in the production of many regional research frameworks, including SWARF (Webster (ed) 2008):

1. *Resource Assessment* The current state of knowledge of Scilly's historic environment was assessed through review of published and unpublished sources (including 'grey literature'), Historic Environment Record (HER) and National Monument Record (NMR) resources, museum archives and information held by local interest groups and members of the public.
2. *Research Agenda*: Identification of a) gaps in the current state of knowledge, b) the potential of the historic environment resource, and c) key research themes and aims.

3. *Research Strategy*: Production of a list of research priorities for the islands (this will be a separate follow-on project).

The project adopted a primarily chronological approach, from early prehistory to the modern period. However, careful attention was paid to transitional periods (e.g. hunter-gatherer to farmer, medieval to post-medieval), including those transitions that fall within traditional chronological phases (e.g. early to late Neolithic).

Cross-cutting themes were also addressed, either embedded within chronological overviews or as separate thematic reviews. Examples of thematic reviews include the coastal, intertidal and marine historic environment and maritime infrastructure, palaeoenvironments, the island landscape, historic landscape and seascape characterisation, trade and industry, and historic buildings and architecture. Formulation of the Resource Assessment and Research Agenda involved three areas of work:

Consultation: The Resource Assessment and Research Agenda were informed by a programme of consultation and feedback. The project aimed to be as inclusive as possible of all parties with an interest in the historic environment of Scilly, including curatorial and field archaeologists, historic buildings researchers, architectural historians, university academics, English Heritage, museum staff, amateur archaeologists and local interest groups. The project manager sought to identify, inform and involve stakeholders. The draft Resource Assessment was circulated via the Council of the Isles of Scilly website and discussed at a seminar held in Exeter on 10 December 2011.

Data Collection: Compilation of the Resource Assessment and to a certain extent also the Research Agenda involved review of published and unpublished sources, HER and NMR data, museum archives, the work and advice of period/thematic experts and information from other interested parties. Researchers and consultants were invited to make voluntary or part-voluntary written contributions in order to encourage a sense of ownership of the research framework (contributors are listed at the beginning of the report and individuals contributing to the various topics are noted at the beginning of each section).

Synthesis: The project results were synthesized and posted on the internet at each stage of the project development (assessment, agenda and strategy). Reports reflect the chronological framework of the project design, with cross-cutting themes woven throughout the discussion.

2.1.4 Note on radiocarbon dates in this report

Radiocarbon determinations for Scilly in this report have all been recalibrated from previously published data using OxCal 4.1 and calibrated using the maximum intercept method rather than the probability method. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period to which the date may be weighted (for example, at 89%). This means that calibrated dates in the tables may vary significantly from those in the publications where they first appeared.

The radiocarbon tables in the text include all the determinations which are currently available (AMS and radiometric) for Scilly. The list forms a useful corpus of dated material. All dates are useful, even a bulked sample of unidentified charcoal provides a useful *terminus post quem* for its context, but the taphonomy of some samples may be open to interpretation. Dating of bulked samples is no longer commonly undertaken because of the prevalence of AMS machines and the dearth of radiometric labs.

The list also includes some determinations which have standard deviations of ± 100 upwards. These are still valuable because they are accurate but not precise; the size of error is irrelevant when chronological modelling is employed.

2.2 Introduction to the Islands

The Scillonian archipelago of approximately 200 islands, islets and rocks situated 45km (28 miles) south-west of Land's End (Fig 2.1) is a unique environment of exceptional quality, with the relationship between the land and sea providing a very strong and distinctive cultural identity.

Today only five islands are inhabited: St Mary's and the 'off-islands' of St Agnes, Bryher, St Martin's and Tresco. Smaller islands that were inhabited in historical times include St Helen's, Samson and Tean.

The archipelago contains wide expanses of shallow subtidal and intertidal environment flooded by rising relative sea level during the Holocene. It has long been known that the islands in their current form are a result of past sea-level rises that flooded early sites. It is therefore a valuable microcosm for studying continuous sea-level rises within an historical context as well as for research and recording important sites that will be lost, and investigating how past populations adapted to their shifting shores.

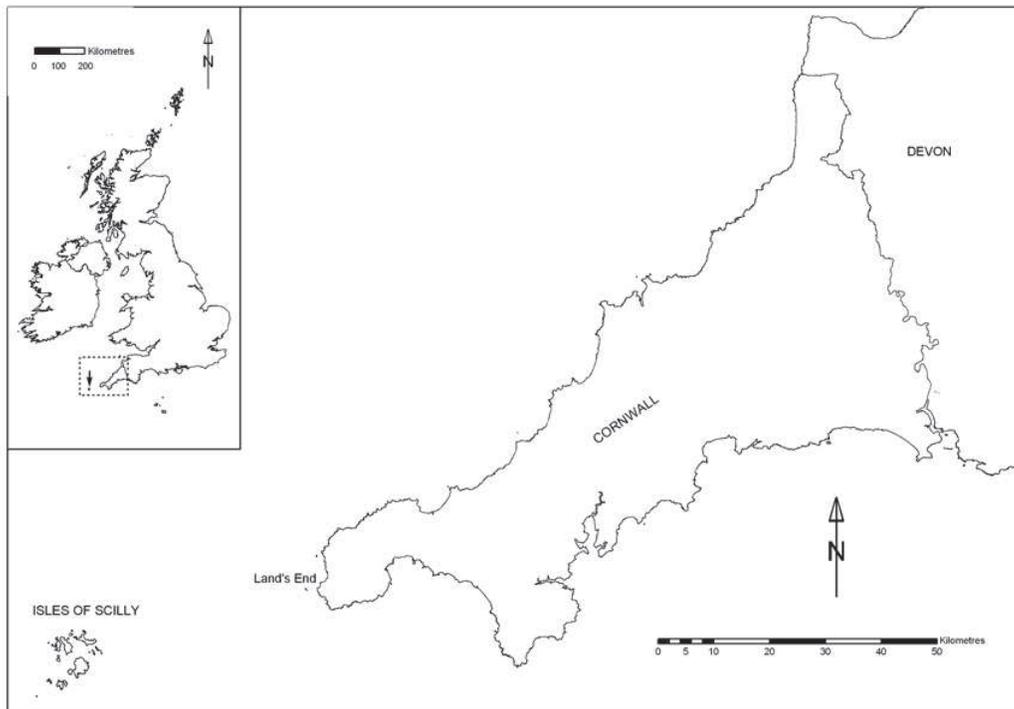


Fig 2.1 Location map – the Isles of Scilly

2.2.1 Geology

The Isles of Scilly are situated at the merging of the Western Approaches and the English and Bristol Channels. The area forms part of the wide continental shelf to the south and west of England. The rocks at seabed are resistant, metamorphosed, Palaeozoic sediments locally intruded by mainly granitic igneous bodies such as Scilly and the Seven Stones reef (Evans 1990, 1).

Scilly is a geologically-defined topographic feature, an incised and partly submerged cupola forming the western tail of the ridge of exposed granite bosses running along the spine of the south-western peninsula (Dartmoor, Bodmin Moor, St Austell, Carnmenellis and Land's End), the visible part of the single, large Cornubian batholith which intruded into Devonian and Carboniferous stratas some 225 million years ago as a result of the Variscan orogeny. The single rock type has resulted in a uniform morphology in the archipelago, the detailed form of which is controlled by crystalline

variation within the granite, fault patterns and variation in exposure to wave energy (*ibid*, 20-8).

The underlying granite is covered on lower hillslopes and valley floors by weathered periglacial head, dark yellowish-brown stony clay known locally as *ram*, which supports soils suitable for cultivation and pasture.

2.2.2 Topography

Scilly was originally a single, large, oval-shaped island. The erosion and partial submergence by the sea has resulted in the formation of the archipelago with individual islands varying greatly in size and in the height at which they rise above the sea. While the smallest islands of the Western Rocks and Eastern Isles are little more than rocky projections, the five largest islands are much larger in size, covering a total area of 1422 ha (Fig 2.2) (Land Use Consultants 1996, 5).

Bryher	126ha
St Agnes	148ha
St Martin's	222ha
St Mary's	629ha
Tresco	297ha

Fig 2.2 Areas of the five largest islands (Land Use Consultants 1996)

Although rarely rising more than 30m above sea level, there is a remarkable variety and diversity both within and between the individual islands. Each island has a distinctive topography and configuration varying from the gently undulating interior of St Mary's, which rises to the highest point on the Islands at 48m OD at Telegraph Hill, to the series of hills, hollows and valleys that make up Bryher. These in turn contrast with the east-west granite spine of St Martin's and the rounded, flat-topped island of St Agnes. The islands also differ according to the degree of exposure they receive. The outer sides of the island group, that is the north and west coast of Bryher, the north coast of Tresco and St Martin's, and the south-facing coast of St Mary's and St Agnes are generally much harsher with a rugged, rocky coastline exposed to the full force of the Atlantic. By contrast the coastline fronting the interior sea is more sheltered and includes broad, gently shelving sandy beaches and coves (*ibid*, 5).

Extensive intertidal flats, bars and shallow subtidal areas cover much of the inner region of the archipelago; most of the subtidal areas between Tresco, St Mary's and St Martin's are no more than 5m below chart datum (bcd). Broad, fairly shallow sounds radiate outwards from the central areas; e.g. St Mary's Roads, a sound between Tresco and St Mary's and extending to the south-west, which varies between 5m bcd (at the north-eastern end) to 150.25m bcd (off Annet to the south-west) (Evans 1990, 9).

There is only one true example of a freshwater stream on Scilly, on St Mary's. This is fed by a spring which rises at Holy Vale and flows within a shallow valley towards Higher Moors and Porth Hellick Pool. However maritime and freshwater pools occur on most of the islands (Land Use Consultants 1996, 5).

Bryher

Bryher has more varied topography than any of the other islands; its name is derived from the Cornish place-name element *bre* meaning 'hill' and the plural suffix *yer* (Padel 1988, 60) The island is essentially composed of a series of small rounded granite hills (Watch Hill, Timmy's Hill, Gweal Hill, Heathy Hill and Samson Hill) which rise to heights of between 33m and 42m above the intervening valley pastures which run east-west across the island. The exposed headland heath of Shipman Head Down, with its wind-pruned vegetation of maritime grassland and waved heath, extends to the north of the island (Land Use Consultants 1996, 89).

The wilder northern and western sides of the island are open and exposed to the Atlantic while the east coast is sheltered and separated from Tresco by narrow sandy flats (*ibid*, 89).

Granite with weathered periglacial head cloaking the lower slopes of the valley floors provides a suitable soil for cultivation and pasture. On the western side of the island blown sand creates a low-lying area of sand dunes and dune pasture between the Hell Bay Hotel and Great Rushy Bay. Otherwise it is a harsh rocky granite coastline (*ibid*, 89).

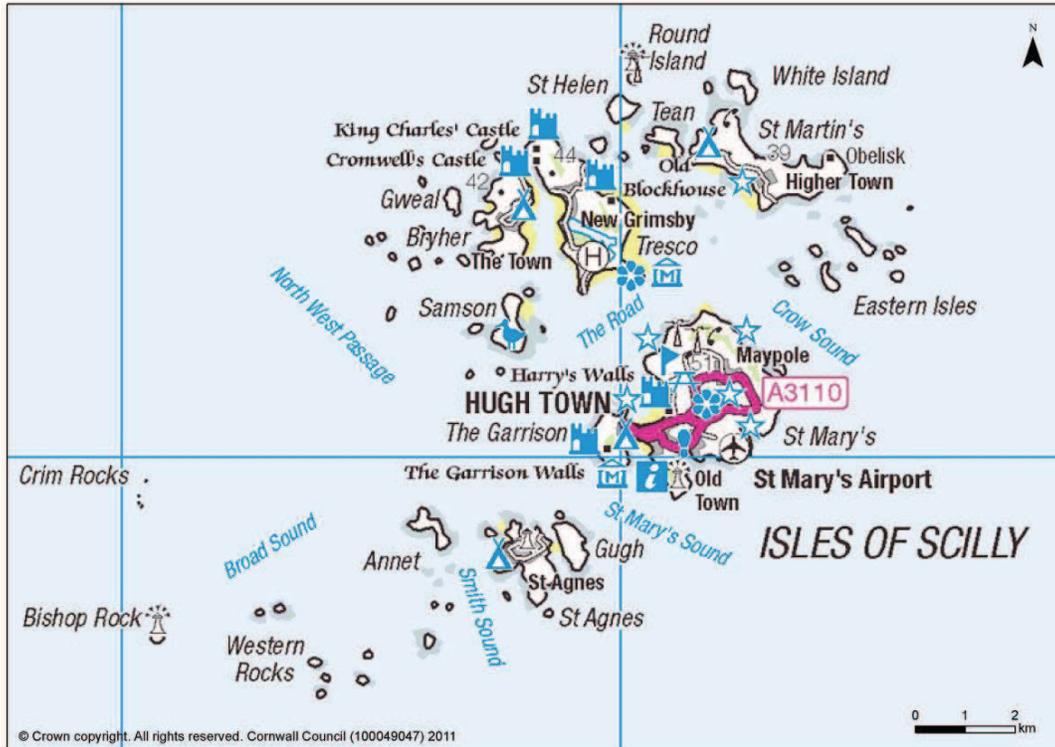


Fig 2.3 The Isles of Scilly

St Agnes

St Agnes is physically similar to the uninhabited western islands – small, round and relatively flat with a rocky coastline. It rises to a maximum height of just above 25m in the centre of the island. The cultivated northern part of the island contrasts with Wingletang Down, the low-lying southern headland where the granite outcrops rising above the heather have been weathered into distinctive tors. The island of Gugh is attached to the eastern side of St Agnes by a sandy *tombolo* which is uncovered at low tide (Land Use Consultants 1996, 91).

St Martin's

St Martin's comprises a long ridge of granite which forms a central spine running east-west along the centre of the island at about 30-40mOD. To the north of the ridge an exposed windswept plateau bears the full brunt of the Atlantic weather, while to the north-east the heath covered granite headland of Chapel Down juts out into the Atlantic. To the south of the central spine the land slopes gently down in a series of bowls and hollows to the low-lying sandy fields fronting the shallow interior sea (Land Use Consultants 1996, 89).

Blown sand cloaks much of the central granite ridge, creating the bracken-covered area known as the Plains. On the edges of the island the sand accumulates in sheltered bays

– St Martin’s Bay on the north coast (sheltered by White Island) and Higher Town Bay (Par Beach) and the Neck of the Pool on the south coast. These long white sandy bays are one of St Martin’s outstanding features (*ibid*).

St Mary’s

St Mary’s is the largest of the islands measuring approximately 4km long by 2.8km wide. A relatively flat island, its most dramatic features are the rock formations at Penninnis, the southern headland. Rising from a low rocky coastline, the interior of the island is gently undulating and includes the rounded plateau hills at Halangy Down, the golf course and the airport (Salakee Down), narrow wooded valleys at Watermill and Holy Vale, and the wider low-lying area of Higher Moors and Lower Moors. The interior of St Mary’s is more isolated from the extreme influence of the sea when compared to some of the off islands (*cf* Land Use Consultants 1996, 95).

St Mary’s is almost entirely granite, with small areas of blown sand accumulating at the Bar, Porth Hellick, Old Town Bay and the coast around St Mary’s Pool creating a small sandy bays in an otherwise rocky coastline. The fortified headland of the Garrison at the south west of the island is linked to the rest of St Mary’s by a sandy isthmus at Hugh Town (*ibid*).

Tresco

Tresco essentially comprises three low rounded hills separated by broad valleys. In the north Castle Down rises to a height of 44m OD and forms an exposed headland. In the centre of the island Middle Down forms a wide hill, rising to a height of just over 30m OD, while the smaller Abbey Hill lies to the south. The granite hills are separated by gentle valleys. The settlements of Old Grimsby, Dolphin Town and New Grimsby lie within the sheltered valley between Castle Down and Middle Down while the broad lateral valley containing Great Pool divides Middle Down from Abbey Hill. The subtropical Tresco Abbey Gardens shelter in the lee of Abbey Hill. The southern part of the island between Appletree Bay and Pentle Bay comprises a flat, low-lying area of blown sand which includes an extensive dune system (Land Use Consultants 1996, 97).

2.3 History of local government in the Islands

Shortly after the Norman Conquest the Islands became the property of the Crown of England and from 1141 part of the Earldom, then after 1337, the Duchy of Cornwall. From the twelfth century the administration of Scilly was divided, with Tavistock Abbey presiding over the northern part, centred at St Nicholas Priory on Tresco, while the de Wika family of Week St Mary in north Cornwall and later the Blanchminsters, also from north Cornwall, were proprietors of what are now St Mary’s and St Agnes. The Blanchminsters were followed by a succession of lay lords (Land Use Consultants 1996, 23).

Tavistock Abbey’s interest in the islands had dwindled by the Reformation and in 1547 Thomas Seymour, Lord Admiral of England, acquired the whole of Scilly. Two years later Seymour was accused of plotting against Edward VI and using the islands as a base for piracy. His execution marked the beginning of the Godolphin connection with Scilly; initially appointed as Captains of the Isles, in 1570 Elizabeth I granted Francis Godolphin a 38-year lease in return for an annual rent of £20. The Godolphins and their successors (the Osbornes, Dukes of Leeds), who ruled in Scilly almost continuously until 1831 when the Islands returned to the direct control of the Duchy, ran the Islands’ affairs through His Grace’s Council, popularly known as the Council of Twelve. The Islands were administered essentially as a single estate (Land Use Consultants 1996, 24; Bennett *et al* 1991).

When the Duke of Leeds decided not to renew the lease of Scilly an administrative vacuum was created which was filled from 1832 by the establishment of the Select Vestry, which, with the Magistrates Court, administered the Islands’ affairs until 1891 (Matthews 1960, 214; Bennett *et al* 1991).

In 1834 Augustus Smith (1804-72), a member of an old Hertfordshire family, became Lord Proprietor of the Islands. His autocratic rule largely dominated the Select Vestry and Magistrates Court (Matthews 1960, 214).

The Local Government Act 1888 allowed the Local Government Board to establish in the Isles of Scilly 'councils and other local authorities separate from those of the county of Cornwall... for the application to the islands of any act touching local government.' In August 1890 a Local Government Board Provisional Order Act was passed by which Scilly was constituted into a County Council area and suitable machinery for the direction of public affairs was set up. Accordingly, in 1891 the Council of the Isles of Scilly was formed as a *sui generis* unitary authority, outside the administrative county of Cornwall (Matthews 1960, 236; Gill 1975, 64).

2.4 Tenure

The Duchy of Cornwall owns the freehold of most of the land and nearly a third of the residential buildings on the Islands. The Isles of Scilly Wildlife Trust (IOSWT) cares for the rough ground that make up 60% of the landmass of Scilly and includes all of the uninhabited islands, islets and rocks and most of the coastal fringes on the inhabited islands of St Mary's, St Agnes, Bryher and St Martin's and rents these lands from the Duchy for one daffodil a year on a 99-year lease which began in 1986 (Fig 2.4). The island of Tresco is leased from the Duchy by the Dorrien-Smith family, the heirs of Augustus Smith.

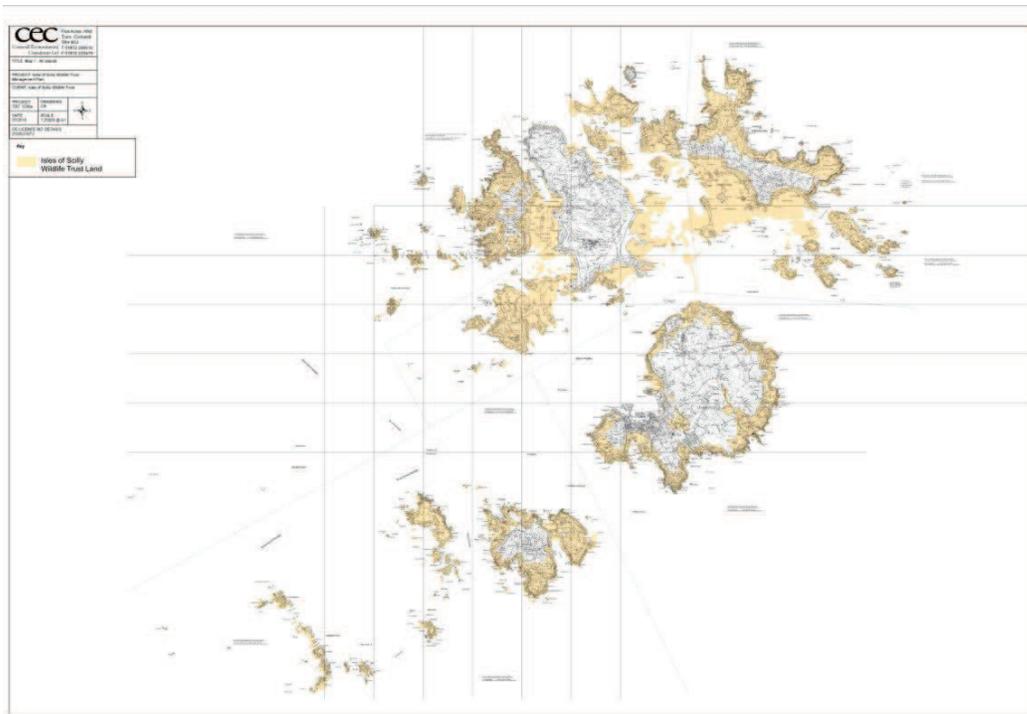


Fig 2.4 Map of the Isles of Scilly Wildlife Trust's holding (Cornwall Environmental Consultants)

2.5 Past and present work in Scilly

2.5.1 Antiquarians and archaeologists

The study of the historic environment of Scilly was pioneered by the famous antiquarian William Borlase, vicar of Ludgvan parish near Penzance, who visited Scilly in 1752 and identified and classified various entrance graves, menhirs and ancient field walls

(Borlase 1753; 1756). He carried out the earliest recorded excavation in Scilly when he opened two entrance graves on Buzza Hill, St Mary's (Borlase 1756; 1769). Only 12 excavations are recorded between then and 1929, all but one of which were entrance graves or cists. It is very probable that many more of these monuments were dug into in a less systematic way and the findings not recorded for posterity.

Considerable archaeological detail was also recorded by the Revd John Troutbeck, chaplain in Scilly between 1780 and 1796 (Troutbeck c 1794). Augustus Smith, Lord Proprietor of the Islands from 1834 to 1872, was interested in Scilly's ancient past as well as its present state and in 1862 he opened a cist barrow on North Hill, Samson (Smith 1863). In 1899 George Bonsor, a retired Cornish engineer and antiquarian, residing in Spain, arrived in Scilly and spent three years investigating the archaeology of the Islands (Hencken 1932; Ashbee 1981).

Some of the earliest archaeological photographs in Britain were taken by the Scillonian photographer Alexander Gibson (1857-1944). His pictures and those of his son, James, form a valuable record of the ancient monuments of Scilly. The family also collected a large number of antiquities which were exhibited in their private museum in Hugh Town until the 1960s.

In 1926 OGS Crawford, Archaeology Officer to the Ordnance Survey, visited Scilly and observed the intertidal stone walls on Samson Flats and examined many entrance graves and cists (Crawford 1927; 1928). Between 1923 and 1927 and from 1930 to 1936 Alec Gray, an amateur archaeologist from Cornwall, lived in the Islands and recorded numerous stone structures and old land surfaces exposed by cliff erosion (Gray 1972). He was assisted in his work by local enthusiast Joe Treneary of Telegraph Hill, St Mary's. Gray's work at Halangy Porth in 1929 (*ibid*) marked the beginning of 30 years of more intensive excavation in Scilly, which was no longer totally preoccupied with Bronze Age funerary monuments.

The first comprehensive account of Scillonian archaeology was published in 1932 by Hugh O'Neill Hencken. His work concentrated on entrance graves. He numbered those he identified, island by island, and tabulated their dimensions. Stuart Piggott came to Scilly in 1937 (Piggott 1941) and five years later, during World War II, WF Grimes made a brief visit to St Mary's to excavate an entrance grave on Salakee Down prior to the extension of the airfield by the Ministry of Defence (Grimes 1960). Glyn Daniel incorporated the results of fieldwork in Scilly in 1936 and 1946 into *Prehistoric Chamber Tombs of England and Wales*; he renumbered and made additions to Hencken's list of entrance graves (Daniel 1950).

During the immediate post-war years, the Revd HA Lewis pursued his interest in archaeology while chaplain of St Martin's (Lewis 1948) and his discoveries led to Bryan O'Neil, Chief Inspector of Ancient Monuments for the Ministry of Works (MoW) making his first visit to Scilly in 1947. Accompanied by his wife, Helen, he returned yearly until his death in 1954. During this period he wrote the Ministry's official guide to the ancient monuments of Scilly (O'Neil 1961). In the 1940s and 1950s the O'Neils carried out a total of 34 excavations in Scilly and these are listed by Beagrie (1989). Most were entrance graves or early settlement sites on St Martin's, but they also included Giant's Castle on St Mary's and King Charles' Castle on Tresco. In 1953-4 Helen O'Neil excavated the ecclesiastical complex on St. Helen's (O'Neil 1964). Equally important was Charles Thomas' excavation of an Early Medieval chapel and cemetery at East Porth, Tean in 1956 (Thomas 1960b; 1985, 183-5).

Paul Ashbee first came to Scilly at the request of Bryan O'Neil, to excavate the cist-grave cemetery at Porthcressa, St Mary's for the MoW (Ashbee 1954; 1979). He continued the study of entrance graves, introducing his own numbering system (Ashbee 1963). He also investigated the courtyard house settlement at Halangy Down (Ashbee 1955; 1996). In 1974 he published *Ancient Scilly*, an account of the early archaeology of the Islands, the culmination of his work over the previous 25 years.

A variety of other individuals and institutions carried out archaeological work in Scilly during the second half of the twentieth century. From the 1950s to the 1970s Andrew Saunders, then Chief Inspector of Ancient Monuments, made frequent visits to the Islands. In 1954 he and Trevor Miles undertook a trial excavation at King Charles' Castle, Tresco (Miles and Saunders 1971); the assemblage of ceramics recovered from that site is still the single most informative collection from the period in Scilly. Dorothy Dudley, Sarnia Butcher, David Neal and John Evans carried out excavations under the auspices of the MoW at Poynter's Garden, St Mary's (Dudley 1960), Nornour (Dudley 1967; Butcher 1978 and 2000-1), Little Bay, St Martin's (Neal 1983), East Porth, Samson (Neal, forthcoming) and Bar Point, St Mary's (Evans 1984). In 1978 Howard Mason from Cardiff University excavated a post-medieval building on Samson (Mason 1984). Since 1963, Michael Tangye, an amateur archaeologist from Redruth, has holidayed in Scilly and recorded its archaeology. In 1978, as part of its map revision, the Ordnance Survey carried out a systematic archaeological survey of every island (Quinnell 2009-10)

In the 1970s extensive survey work was carried out by Charles Thomas, notably of early settlement and field system remains (Thomas 1975; 1978; 1985; Fowler and Thomas 1979). In the late 1970s and early 1980s he superintended several important projects in Scilly, including Vivien Russell's checklist of archaeological sites (Russell 1980), the initial compilation of a Sites and Monuments Register (1984-5) and an excavation index for Scilly compiled for the RCHME in 1987/88. In 1985 he published *Exploration of a Drowned Landscape* which illustrates his wide-ranging knowledge of Scillonian archaeology and history (Thomas 1985).

Trenching in advance of cable laying for the off-islands Electrification Project was observed and recorded on St Martin's, Tresco, Bryher and St Agnes during 1985 under the supervision of Jeanette Ratcliffe for the Institute of Cornish Studies (ICS); the results of the project were presented in *Lighting up the past in Scilly* (Ratcliffe 1991).

Jeanette Ratcliffe subsequently became a field officer with the Cornwall Archaeological Unit (CAU), with special responsibility for projects in the Isles of Scilly. In 1988, with a team including Cathy Parkes, Carl Thorpe and Andy Waters, she carried out a benchmark project for English Heritage to assess the archaeological resource of the Islands, resulting in a management plan for Scilly (Ratcliffe 1989).

Emerging from the recommendations of this report was the Coastal Erosion Project (CEP), a five-year rolling programme of coastal monitoring, small-scale excavation and recording and environmental sampling, funded by English Heritage and implemented by CAU (in conjunction with the Ancient Monuments Laboratory and Bristol University) between 1989 and 1993. The CEP culminated in the publication of *The Early Environment of Scilly* (Ratcliffe and Straker 1996).

Much of the archaeological fieldwork undertaken in Scilly during the 1990s was associated with coast protection schemes or cable laying. The former included recording cliff-exposed Bronze Age remains at Porth Killier on St Agnes in 1996 (Ratcliffe *et al*, forthcoming) and sampling peat deposits at Old Town Bay, St Mary's (Ratcliffe and Straker 1998). During British Telecom trenching on St Martin's in 1992 an Early Christian grave and medieval midden were discovered at Lower Town (Ratcliffe 1997).

In 1995 Gill Arbery was appointed as Field Monument Warden and Conservation Officer for Scilly, a post jointly funded by English Heritage and the Council of the Isles of Scilly. Gill did much valuable work in Scheduled Monument management and planning advice before she left in 2004. Her successor Eleanor Breen was in post as Assistant Planning Officer (Conservation) and Historic Environment Field Advisor between 2007 and 2011.

The discovery and excavation of the Bryher sword and mirror cist burial in 1999 is arguably the most important archaeological event in the Islands during the last 25 years. A fragment of long bone from the burial was radiocarbon dated to 200-45 cal BC. The metalwork typology narrows this range to the first half of the first century BC,

indicating that Bryher is the earliest known British decorated bronze mirror, with important implications for the study of insular Celtic art in Britain (Johns 2002-3).

Much development-led work was undertaken in the first decade of the twenty-first century, mostly small scale interventions by various archaeological contractors. A watching brief during the construction of a new playing field at Dolphin Town, Tresco, in 2003 revealed remains of a Middle Bronze Age settlement (Taylor and Johns 2009-10) and a Late Bronze Age settlement was investigated in 2009/10 at a new affordable housing development at Higher Town Farm on St Agnes (Taylor and Johns, forthcoming). Detailed evaluation on the site of the new Five Islands School Base at Carn Gwaval, St Mary's did not reveal any archaeological remains other than removed post-medieval field boundaries (Johns *et al* 2010). Similarly watching briefs during the refurbishments of the off-island quays in 2007 were largely unproductive except for the discovery of two nested Early Bronze Age vessels on the site of the contractor's compound near Porth Conger, St Agnes (Johns and Sawyer 2008; Wessex Archaeology 2008a; Johns and Quinnell, forthcoming).

There has been continuing interest in Scilly by academic researchers. Fieldwork and research has been undertaken by Trevor Kirk (Kirk 2004), Mary Ann Owoc of Mercyhurst College, Pennsylvania (Owoc *et al* 2003), and Eleanor Breen (Breen 2005 and 2008). Gary Robinson drew together and reconsidered existing archaeological data for his PhD thesis (Robinson 2007). Katharine Sawyer is currently studying for a PhD on the setting and function of the Bronze Age chambered cairns and cists of Scilly.

Since 2005, three seasons of fieldwork have been carried out by the ongoing 'Islands in a Common Sea' project directed by Charles Johns and Jacqui Mulville of Cardiff University, including recording the cliff-exposed Bronze Age cairn at Pendrathen, St Mary's (Johns and Mulville 2011), evaluation of the site of Knackyboy Cairn (Mulville *et al* 2007), and archaeological investigation and building recording of the post-medieval buildings on Samson and Tean (Johns *et al* 2007; Johns *et al*, forthcoming a and b).

Detailed survey of the intertidal stone walls and other features on Samson Flats was carried out by the Cornwall and Isles of Scilly Maritime Archaeological Society (CISMAS) in 2009 and 2010 (Camidge *et al* 2010a). A survey of field boundaries on Bryher, St Agnes, St Martin's, St Mary's and Tresco has recently been carried out by HE Projects (Kirkham *et al* 2011). The majority of sites and monuments in Scilly still do not have large-scale measured plans or surveys.

In September 2013 some small scale excavation is proposed at Old Quay, St Martin's, as part of the 'Neolithic Stepping Stones' project, to improve understanding of the processes through which Neolithic practices came to Britain from the European mainland around 4000 BC (Garrow and Sturt 2009).

2.5.2 Geophysical survey

Geophysical surveys have been carried out as part of evaluations at Dolphin Row Cottages, Tresco (Shiel 1999), and Dolphin Town, Tresco (Gater 1999), and during 'Islands in a Common Sea' fieldwork at Pendrathen and Lunnon and Normandy Farms, St Mary's, in 2005 (Young, in Johns and Mulville 2011). In 2007, as part of the same project, geophysical surveys were carried out at East Porth, Tean and the cricket pitch on St Agnes (Young, in Johns *et al*, forthcoming). Geophysical survey was also carried out in advance of the new Five Islands School Base development at Carn Gwaval, St Mary's (Sabin and Donaldson 2010).

Maritime geophysical survey and prospection for submerged peat deposits were carried out during the Lyonesse Project (Camidge *et al* 2010b; Charman *et al* 2011). A geophysical survey of St Mary's harbour was carried out by Wessex Archaeology in 2004 (Wessex Archaeology 2004).

2.5.3 Environmental studies

Pollen studies carried out since the 1960s have produced valuable information regarding the past vegetation and environmental history of Scilly. Analysis of peat samples from the two major wetlands of Higher and Lower Moors, St. Mary's, has provided a general background vegetational history for the Islands (Scaife 1984). Radiocarbon determinations from Higher Moors made it possible to broadly date the vegetational changes represented in pollen diagrams. During the sixth millennium BC woodland of mainly oak, birch and hazel predominated. Partial woodland clearance, accompanied by cereal cultivation, occurred during the Bronze Age, but was followed by a phase of localised woodland rejuvenation. By the Early to Middle Iron Age, however, this cover had virtually disappeared.

Pollen results reflecting very localised vegetation and environmental change have been obtained from palaeosoils buried beneath blown sand. Dimpleby's work at Innisidgen produced the first direct evidence of deciduous forest cover on St Mary's, together with evidence of early agricultural activities (Dimpleby *et al* 1981). Soil pollen analyses at Nornour (Greig and Keeley 1978), Halangy Down (Dimpleby *et al* 1981) and Bar Point (Balaam 1981) reflect the open conditions and more intensive agriculture which prevailed during the Iron Age.

Some work has been carried out on buried soils themselves, for example at Nornour (Greig and Keeley 1978; Keeley 1978), Little Bay (Keeley 1983), Samson (Keeley AML Report 1975a), Bar Point (Macphail 1981) and Hillside Farm, Bryher (Heathcote 2000).

The 1989-93 Coastal Erosion Project assessed the palaeoenvironmental potential of 14 early coastal sites. The key environmental gain from the cliff-face sites was the establishment of a range of crops for Scilly for the Bronze Age and Iron Age. These included naked and hulled barley, emmer wheat and celtic bean and other plants such as fat hen, knotgrass, black bindweed and chickweed (*ibid*).

Radiocarbon dating and palaeoenvironmental analysis of two peat layers below the surface of the beach at Old Town, St Mary's, indicated that between the Iron Age and early medieval periods the site was an area of shallow freshwater surrounded by a largely open landscape, with arable fields and pasture bordering wetland. Following an episode of sand encroachment, the upper 'peat' began forming within a similar environment some time during the tenth to twelfth centuries AD (Ratcliffe and Straker 1998).

In 2006 Rob Scaife carried out analysis of a 'spot' pollen sample from a soil underlying the eroded Bronze Age round cairn exposed in the cliff face at Pendrathen, St Mary's. This showed that the cairn was built on grassland or pasture within a region of hazel scrub woodland, indicating for the first time in Scilly the apparent effects of immediate post-woodland clearance and establishment of grassland, possibly pasture, and also the consequent expansion of hazel woodland (Scaife, in Johns and Mulville 2011).

The Lyonesse Project, a three-year project funded by English Heritage to study the evolution of the coastal and marine environment of Scilly, was carried out between 2009 and 2012 by HE Projects and a team of specialists from English Heritage's Scientific Dating team, the Universities of Aberystwyth, Cardiff, Exeter and Plymouth, with local marine archaeologists and enthusiasts from CISMAS and the Islands Maritime Archaeology Group (IMAG) (Charman *et al* 2012). The project involved geophysical survey of submerged peat deposits, assessment, survey and sampling on intertidal peat deposits, palaeoenvironmental analysis, radiocarbon dating and optically stimulated luminescence (OSL) dating.

2.5.4 Osteological faunal remains

Animal bone preservation is usually poor in Scilly because of the acidity of the soil at the time of deposition, and it is only in large middens that such remains are found. From 1960 Dr Frank Turk studied the sub-fossil fauna of the islands, and identified bones from various excavated sites: Nornour (Turk 1967; 1971; 1978), Tean (Turk

1968), Samson (Turk 1973), May's Hill, St Martin's (Turk 1983), Porth Killier, St Agnes, a midden at Periglis, the unexcavated settlement at Dial Rocks and a site north east of Higher Town, St Agnes (Turk 1968, 1984). In 1984 he published a catalogue of all the species recorded in the Archaeo-Zoology of Cornwall and Scilly up to that date. This includes remains identified at Halangy Porth (Gray 1972), Samson (Mason and Hayton 1977) and Little Bay (Locker 1983).

Existing knowledge and new bone evidence – for example, the addition of seven new fish and ten new birds to the list of species identified for Bronze Age Scilly - was summarised by Ratcliffe and Straker (1996).

Since 1996 assemblages of faunal remains have been recovered from Porth Killier (Locker in Johns *et al*, forthcoming); Hillside Farm, Bryher (Ingrem, in Johns 2002-3); and Higher Town, St Agnes (Ingrem, in Taylor and Johns, forthcoming).

2.5.5 Submergence studies

It is not difficult to imagine the two hundred or so islands, islets and rocks of Scilly as part of one large island that has become gradually submerged. At low tide, extensive sand flats are exposed on the inner-facing shores of the northern part of Scilly, making it easy to visualise former plains fringed by low granite hills and sand dunes. Bryher, Tresco and Samson are still joined at low astronomical tide (LAT), and the water is so shallow between the islands that a drop in sea level of less than 10m would re-unite all except St Agnes and Annet (Ratcliffe and Straker 1997, 74-5). Submerged stone remains (such as field walls, hut circles and cist graves) have been documented since Dr Borlase in the mid-eighteenth century, but it is only in recent years that intertidal 'peat' deposits have been recognised (Ratcliffe and Straker 1997, 64).

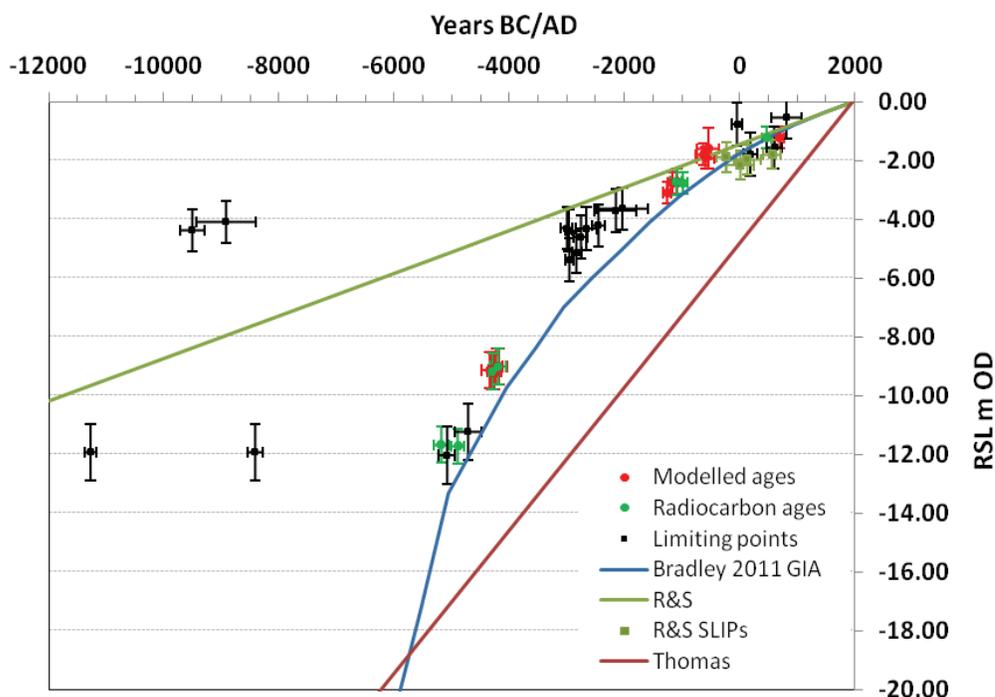


Fig 2.5 All sea-level data from Scilly, showing all limiting index points (max. and min. depths from freshwater peats) and multiple index points from some profiles based on both radiocarbon and modelled age estimates, sometimes from the same samples. Error bars show total error in palaeo-elevation estimates and 2σ age ranges. Continuous lines are the sea-level curves of Thomas (1985), Ratcliffe and Straker (1996) and as derived from Bradley (2011) (from Charman *et al* 2012)

There have been two contrasting models for ancient sea-level rise in Scilly. The first, published by Charles Thomas in 1985, was based on a study of contours and

settlements, supported by coastal place-name evidence, and suggested that Scilly was a single island until about the fifth century AD; it would have continued to form a visible single entity at low tide until as late as the eleventh century, the final separation perhaps not occurring until the early sixteenth century. The second model resulted from analysis of radiocarbon dates and corresponding levels from intertidal peat deposits sampled during the Coastal Erosion Project and indicated a less dramatic sea-level rise so that the islands could have been separated at high water from c 1000BC (Ratcliffe and Straker 1996; 1997).

Modelling of the results from the Lyonesse Project now demonstrate that the present pattern of islands was largely formed by the end of the Early Bronze Age but with a much more extensive intertidal zone than today (Charman *et al* 2012).

2.5.6 Maritime

The National Heritage Act of 2002, which extended English Heritage's remit into the marine zone, and the discovery of the stern carving from HMS *Colossus* brought maritime archaeology to the fore (Stevens 2007). The Time Team visited the islands to record the lifting of the carving in 2002.

There are now two local maritime archaeology groups, the Cornwall and Isles of Scilly Maritime Archaeology Society (CISMAS) and the Islands Maritime Group (IMAG), and other independent divers. Maritime projects have included ongoing trials on HMS *Colossus* (e.g. Camidge 2005; 2009), work on the *Firebrand* by Bristol University and the discovery of the Wheel Wreck by IMAG which has been designated under the Protection of Wrecks Act 2003. Wessex Archaeology has carried out designated and undesignated site assessments of a number of wrecks for English Heritage (Wessex Archaeology 2005; 2006a; 2007).

2.5.7 Unpublished fieldwork

This includes George Bonsor's notes on his work in Scilly between 1899 and 1902, fieldwork carried out over many years by Charles Thomas and Michael Tangye (although their valuable field notes, sketches and photographs made a valuable contribution to the compilation of the SMR), and Bryan O'Neil's archive (although this provided a major source of information for the 1987/1988 Excavation Index).

Key sites for which publication is outstanding include the 1956/60 excavations at East Porth, Tean (Thomas 1960b), the 1971 excavation at East Porth, Samson (Neal, forthcoming), the 1971 excavation at Bar Point, St Mary's (Butcher and Johns, forthcoming) and the results of the 1996 Coast Protection Scheme recording at Porth Killier, St Agnes (Ratcliffe *et al*, forthcoming).

2.6 Sources

2.6.1 Published sources

A considerable amount has been written on the archaeology and history of Scilly. Much archaeological detail is included in eighteenth- and nineteenth-century accounts of the islands (Leland (in Chope 1918); Heath 1750; Borlase 1756; Troutbeck 1796; Woodley 1822; Whitfield 1852; Maybee 1883). The 1651 Parliamentary Survey is also very useful (Pounds (ed) 1984). During the twentieth century three books were published which deal specifically with the archaeology of Scilly (Hencken 1932; Ashbee 1974; Thomas 1985), plus a report on the archaeological resource and recommendations for its management (Ratcliffe 1989) and the *Early Environment of Scilly* (Ratcliffe and Straker 1996). More recently, Gary Robinson's PhD thesis on the prehistoric island landscape of Scilly was published in 2007. Other books document the general history of the Islands (e.g. Matthews 1960; Mumford 1967; Gill 1975; Bowley 1980). References to Scillonian archaeology are also contained in archaeological books covering a wider geographical area than Scilly (e.g. Daniel 1950; Piggott 1954; Pearce 1978; Bell 1984; Todd 1987; etc).

Numerous articles on various aspects of the historic environment of Scilly have been published in the journals of local and national societies. The results of most early excavations in Scilly are found in the pages of the *Antiquaries' Journal*, the *Archaeological Journal*, and the *Proceedings of the West Cornwall Field Club*. Since the founding of the Cornwall Archaeological Society in 1962, most excavation reports have been published in its journal, *Cornish Archaeology*, with a few appearing in *Cornish Studies*, the journal of the Institute of Cornish Studies. *The Scillonian*, the quarterly magazine for the Isles of Scilly, frequently contains articles on historical and archaeological subjects.

The Isles of Scilly Museum publishes an occasional series of booklets including a checklist of archaeological sites (Russell 1980), a guide to the buildings of Scilly (Laws 1980) and a study of the kelp industry (Over 1987).

Earlier guide books for the archaeological remains in Scilly include O'Neil (1949) and Over (1974). The first edition of the popular booklet *Scilly's Archaeological Heritage*, which provides a succinct chronological overview of the islands' archaeology and history and a gazetteer of sites to visit, was published in 1992 (Ratcliffe 1992). A fully revised edition with colour illustrations was published in 2003 (Ratcliffe and Johns 2003). A number of archaeological and historical walks leaflets have also been produced.

Many books have been published on the maritime history of Scilly (Morris 1969 and 1979; Larn 1993; 1999; Larn and Larn 1995; McBride and Larn 1999; Stevens 2007; 2008; 2009; etc).

Important recent publications are Rosemary Parslow's study of Scillonian flora (Parslow 2007), and English Heritage's new book on the military defences of Scilly (Bowden and Brodie 2011).

Recent development-led work is reported in 'grey literature' reports produced by various organisations, copies of which are provided to the HER.

2.6.2 Cartographic sources

The earliest map of the islands, entitled 'Les Sorlinges' and possibly surveyed by Captain John Davies, dates from the late sixteenth century. It gives an impression of where people were living but not in sufficient detail to identify many individual buildings (Fig 2.6). One of the Isles of Scilly Museum publications is a guide to the scarcer maps and books of Scilly (Isles of Scilly Museum 1974).

There are also a number of maps of the Garrison drawn for military purposes that show Hugh Town, including, for instance, Christian Lilly's survey of 1715

Unlike tithe maps on the mainland, the tithe maps for Scilly do not have field boundaries because of the monopolistic landownership of Scilly's two main islands. They do show clusters of buildings that depict in a sketchy fashion the main locations for settlement. Between 1829 and 1831 George and Edward Driver carried out a rental survey of the islands for the Duchy of Cornwall and listed all the holdings, tenements and occupiers. The originals are held in the archives at Tresco Abbey. There are reduced photographic copies in the archives of the Duchy of Cornwall Office in London of four Driver Bros manuscript maps covering (1) St Agnes, Annet, Gugh, St Martin's and White Island; (2) Bryher, Tresco, Gweal, St Helen's, etc; (3) St Mary's; and (4) Samson, Tean and the Eastern Isles.

Today Ordnance Survey maps are available through Geographical Information Systems (GIS), as well as on paper and for the Isles of Scilly English Heritage's WebGIS system provides access to the 1891 1:10,560 OS map, the 1908 1:2,500 OS map, and the 1909 1:10,560 OS map.

collection and its archive, as well as some folders of drawings of the properties it manages on the islands

2.7 Historic Environment designations

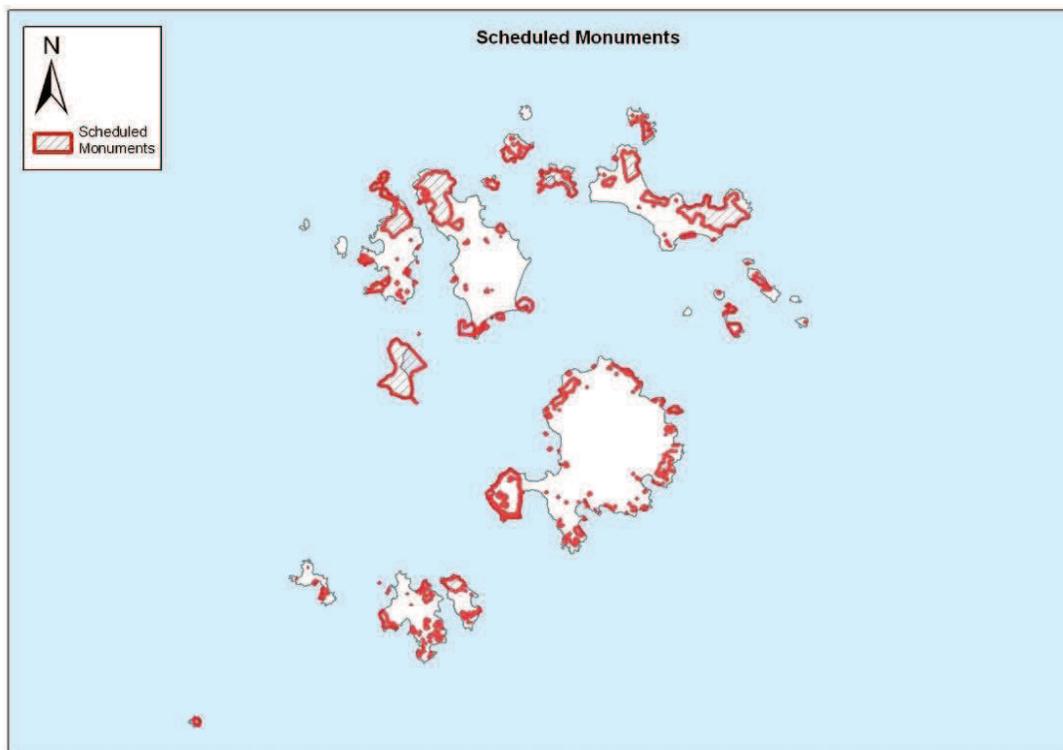


Fig 2.7 Distribution of Scheduled Monuments in the Isles of Scilly

2.7.1 World Heritage Sites

Scilly does not contain any World Heritage sites.

2.7.2 Scheduled Monuments

The Isles of Scilly contain 238 Scheduled Monuments (Fig 2.7), which represents 3.4% of the total in South-West England (as at July 2004). However at 10.23 per km² the islands have by far the highest density, its nearest contender being Plymouth with 0.76 per km², while Cornwall has 0.38 per km² (Webster (ed) 2008, tables 1.1 and 1.2).

2.7.3 English Heritage Guardianship sites

English Heritage has eight unstaffed properties in guardianship located on the Isles of Scilly, three of which are prehistoric and five military in date.

1. Garrison Walls, St. Mary's

Garrison Walls is the largest property on the islands, and currently provides a hub for the interpretation of the other military English Heritage properties on the Islands.

2. Harry's Walls, St. Mary's

Harry's Walls is an unfinished artillery fort built above St Mary's Pool in 1552-3. It has been argued that building work stopped due to a lack of money, or because it was realised that the fort was not in the best position for defence, but neither of these explanations is satisfactory. Its location and state of completion are a real enigma.

3. Bant's Carn Burial Chamber and Halangy Down Ancient Village, St. Mary's

Halangy Down is a Romano-British settlement dating from about cal AD 200 BC, which continued in use until the end of the Roman period. It consists of one large courtyard house and several smaller houses, 11 buildings in total. Excavations at the site in the 1970s produced many artefacts and revealed details of the house structures and way of life (Ashbee 1996).

Directly upslope from the village is Bant's Carn, a Bronze Age entrance grave. It was excavated in 1900 by the antiquarian George Bonsor who found the remains of four cremations at the back of the chamber together with sherds of Bronze Age pottery.

4. Innisidgen Lower and Upper Burial Chambers, St. Mary's

Two Scillonian entrance graves dating to the Bronze Age; although the lower chamber is in a poor state of repair, the upper was restored in the 1970s and is one of the best preserved entrance graves on the Islands. A prehistoric field system survives further up the hillside to the north which may be associated with the chambers.

5. Porth Hellick Down Burial Chamber, St. Mary's

Porth Hellick chamber, the 'Giant's Grave', is a large Bronze Age entrance grave. It is the best preserved of seven Scillonian entrance graves which stand on the down, in addition to two cairns. It is 12m in diameter; apparently an encircling kerb was destroyed during misguided restoration work by the MoW. Although it was excavated in 1899 by George Bonsor, only Bronze Age pottery was found and it was reported that the tomb had already been cleared.

6. Old Blockhouse, Tresco

The Old Blockhouse is a small gun blockhouse, built to protect Old Grimsby harbour between 1548 and 1552. It later played an important part during the Civil War. In 1651 a Royalist garrison was defending the islands against attack by a Parliamentarian fleet commanded by the famous Admiral Robert Blake. Blake attacked Tresco first and although the blockhouse was vigorously defended, the Parliamentarians went on to defeat the Royalist stronghold at the Garrison on St Mary's.

7. King Charles' Castle, Tresco

King Charles' Castle was a coastal artillery fort built between 1548 and 1554 during the reign of Edward VI to protect the narrow strait leading past New Grimsby harbour. It is a semi-hexagonal structure, providing a wide field of fire and the two-storey building would have contained two tiers of guns. Domestic quarters for the garrison were located at the rear. However, the castle proved to be badly sited to fire on ships in the channel below: some of its guns wouldn't have been able to be depressed to the steep angle needed.

During the Civil War, the castle was garrisoned by Royalists, and low earthwork bastioned defences were thrown up beyond the castle to protect it from landward attack; these can still be seen. When the Parliamentarians took Tresco in 1651 they bypassed the castle by landing on the other side of the island, near the Old Blockhouse, and attacked over land. The castle was replaced later in the Civil War by Cromwell's Castle.

8. Cromwell's Castle, Tresco

This coastal gun tower built by Oliver Cromwell in 1651-2 was a replacement for King Charles' Castle, built once Tresco had been taken by the Parliamentarians. It was built on a promontory to guard the anchorage and narrow channel between Bryher and Tresco. The guns were mounted on the roof above the garrison's living quarters and magazines. The tower was originally entered at first floor level by an external stair on the south side. The present entrance dates from the construction of the lower gun platform, added in the 1740s by Abraham Tovey, Master Gunner.

2.7.4 Listed Buildings

Scilly has 129 Listed Buildings (Fig 2.8), four Grade 1, eight Grade II* and 117 Grade II (as at July 2004). This is the lowest number of any local authority in the South West but the overall density of 5.54 per km² places it sixth out of 16 (Webster (ed) 2008, tables 1.3 and 1.4).

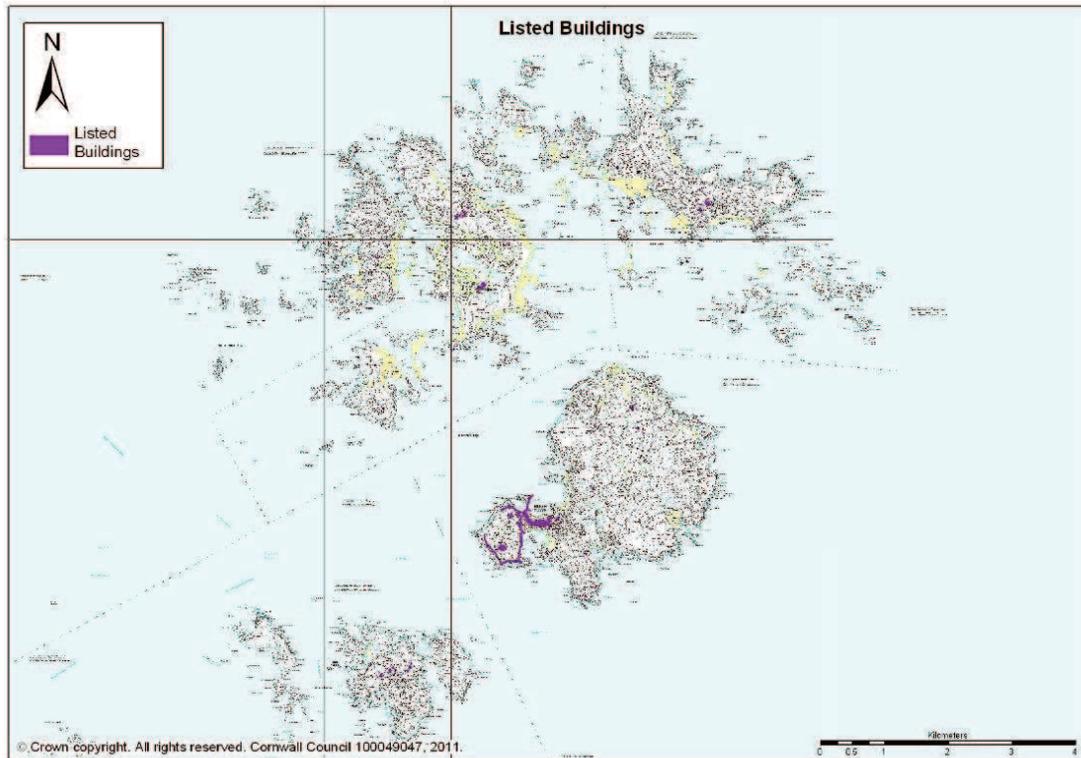


Fig 2.8 Distribution of Listed Buildings in Scilly

2.7.5 Registered Parks and Gardens

The islands contain one Grade 1 Registered Park and Garden (Tresco Abbey Gardens).

2.7.6 Registered Battlefields

Scilly does not contain any Registered Battlefields.

2.7.7 Protected Wrecks

Of a total of some 771 recorded wreck sites in the waters around Scilly, four wrecks are designated under the Protection of Wrecks Act 1973 (section 1). These are:

- the mid-late sixteenth century possible small Spanish cargo on Bartholomew Ledge in St Mary's Sound;
- the Tearing Ledge shipwreck south of the Bishop Rock lighthouse which is now thought to be the *Eagle*, lost in 1707;
- HMS *Colossus*, lost in 1798 off Southard Well, Samson.
- The Little Gannick wreck, comprising a discrete mound of post-1850 Cornish mining equipment (Fig 2.9).



Fig 2.9 The Little Gannick or Wheel Wreck (© Crown Copyright, photo by Wessex Archaeology)

2.8 Other Designations

Eight different designations apply to Scilly:

- Area of Outstanding Natural Beauty (whole of the Isles of Scilly)
- Conservation Area (whole of the Isles of Scilly)
- Heritage Coast (whole of the Isles of Scilly)
- Candidate Special Area of Conservation EU Habitats Directive (SAC) – covers an area of 268.5 km² (26,851 ha, of which 181.32 ha is terrestrial)
- Special Protection Area EU Habitats Directive (SPA) – covers an area of 4.09km² (401.64 ha)
- Non Statutory Marine Park – to 50m contour
- Ramsar Convention-designated wetlands – covers an area of 4.09km² (401.64 ha)
- Sites of Special Scientific Interest (SSSIs) – 26 sites, 5 of which are geological – covers an area of 5.63 km² (554.98 ha) (Council of the Isles of Scilly 2004, 4).

2.9 Other English Heritage National Programmes

2.9.1 Extensive Urban Surveys

The urban survey of Hugh Town was carried out in 2002-3 as part of the Cornwall and Scilly Urban Survey project (Kirkham 2003).

2.9.2 Rapid Coastal Zone Assessment Surveys

The Rapid Coastal Zone Assessment Survey (RCZAS) Phase 1 Desk-based Assessment was carried out by the Historic Environment Service, Cornwall County Council in 2003-4 (Johns *et al* 2004).

2.9.3 Historic Landscape Characterisation

In 1996 Historic Landscape Characterisation was applied to Scilly in the *Historic Landscape Assessment and Management Strategy* (Land Use Consultants 1996), which highlights the antiquity and archaeological potential of Scilly's landscape. The HLC is available as layer on the Isles of Scilly HER GIS database.

2.9.4 Historic Seascape Characterisation

The national Historic Seascape Characterisation (HSC) programme began in 2005 with pilot project in Liverpool Bay undertaken by Wessex Archaeology, subsequent pilot projects were followed by the consolidation of a national methodology for HSC, a demonstration project on the North East and application of HSC to four more areas. The Isles of Scilly is included in the South West Peninsula and adjacent inshore and offshore waters HSC Project which will be completed in August 2013 (Dudley and Johns, forthcoming).

2.9.5 National Mapping Programme

The National Mapping Programme (NMP) grew out of Royal Commission on the Historical Monuments of England (RCHME) projects to map large areas of archaeological remains visible on aerial photographs. Following pilot projects the programme started in 1990. The NMP for Scilly was carried out in 2003 by the Historic Environment Service, Cornwall County Council, to tie in with the RCZAS (Johns *et al* 2004) The NMP plot for Scilly added 108 sites to the HER, of these approximately 25% are in the coastal and intertidal zones.

2.10 Air photographs and LIDAR

Good air photography cover exists for Scilly. It includes photographs taken by the OS, RAF and Admiralty. The National Monument Record holds 1154 specialist oblique records and 516 vertical prints. Historic Environment, Cornwall Council, has a collection of oblique and vertical photographs.

Scilly has 1m resolution Lidar data, together with complete 0.25m aerial photographic coverage (available from the Channel Coastal Observatory <http://www.channelcoast.org/southwest/>).

2.11 Portable Antiquities Scheme

The Portable antiquities Scheme (PAS) only holds eight finds from Scilly on their database, with reference numbers CORN-50CE42, CORN-70BCB3, CORN-FEAC20, CORN-B5D061, CORN-327A62, CORN-31B2A7, SOM-163205 and HAMP-DB29D6.

2.12 Historic Environment Records

2.12.1 The Cornwall and Scilly Historic Environment Record

The Scilly Sites and Monuments Register (SMR) was set up by the Institute of Cornish Studies in 1983 and is currently maintained by Historic Environment, Cornwall Council, as part of the Cornwall and Scilly Historic Environment Record (HER).

The Cornwall Scilly HER contains records for 10 Palaeolithic and Mesolithic sites, 43 Neolithic sites, 684 Bronze Age sites, 107 Iron Age and Romano-British sites, 43 early medieval sites, 63 late medieval sites, 546 post-medieval sites and 88 modern sites.

The Cornwall and Scilly HER also holds copies of grey literature reports for interventions relating to the historic environment in Scilly.

2.12.2 The National Monument Record

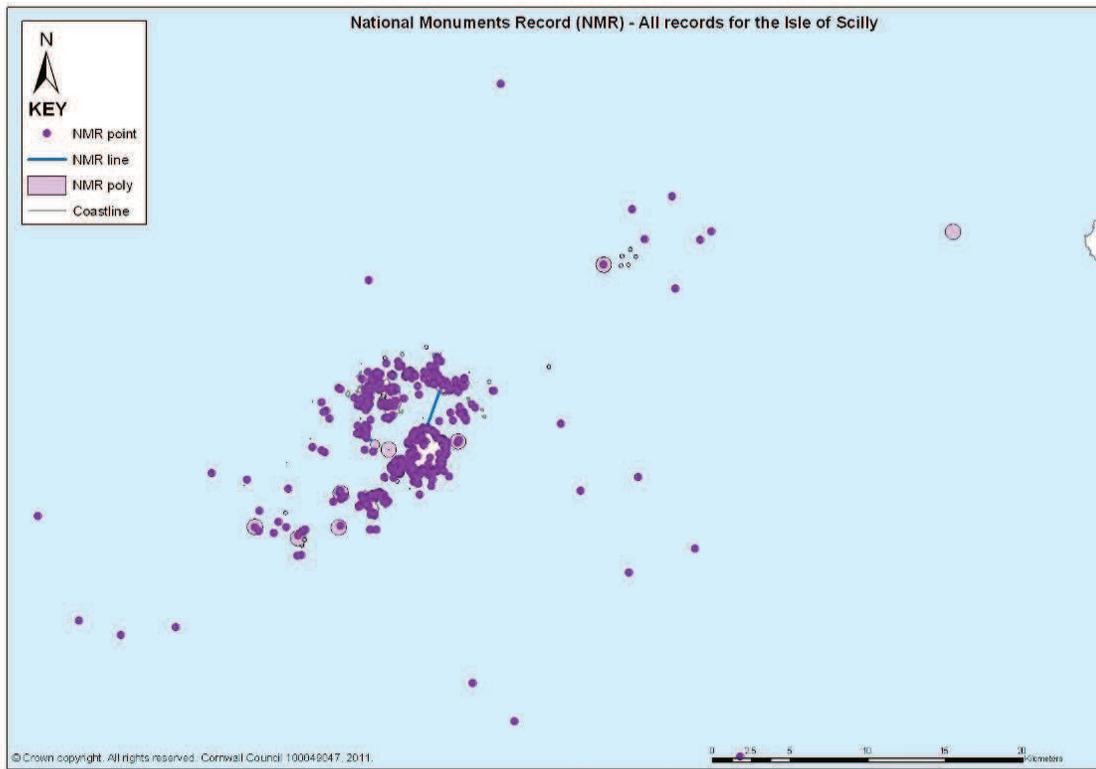


Fig 2.10 Distribution of NMR records for the Isle of Scilly

The National Monument Record (NMR) holds 1462 terrestrial and maritime records for Scilly (Fig 2.10) and 180 NMR event activity reports.

2.12.3 The United Kingdom Hydrographic Office

The United Kingdom Hydrographic Office, Taunton (UKHO) holds 183 wreck and underwater obstruction records for the Isles of Scilly and a large number of charts and maps.

2.13 Museums and archives

2.13.1 The Isles of Scilly Museum

Following the severe gales in the winter of 1962 the small island of Nornour yielded up some remarkable Roman finds, causing some St Mary's residents to establish a local museum. Initially the only viable option was a temporary display in the Wesleyan Chapel during the summer months. After much fundraising and thanks to huge volunteer enthusiasm, the present Museum was opened to the public on 15 July 1967.

The Isles of Scilly Museum (IOSM) is situated in Hugh Town, St Mary's. The collections are extremely diverse, including material from many wrecks, prehistoric and Roman artefacts, natural and social history, local art and much more. In order to preserve links with the rich Scillonian past, the Museum has a comprehensive collection of oral history videos featuring local residents. The Museum's Baxter Room holds over 1200 books and also contains plans, surveys, magazines and assorted paper records relating to the Islands.

The Trustees have the following objectives as far as the IOSM is concerned: to collect, preserve, display and interpret a representative collection of objects, photographs and works of art to illustrate the way of life of the inhabitants of the Isles of Scilly. Within

limits imposed by resources, the Trustees will, on behalf of the IOSM, collect in the following fields: archaeology (terrestrial and marine); fine and decorative art; natural history; social, economic and local history; books; photography and film.

Archaeology

The Trustees will collect, preserve, display and interpret all available archaeological artefacts from the Isles of Scilly. It will, where possible, support any archaeological excavation within the Isles of Scilly and act as a depository for any finds and paper archives. On 20 April 2006 the Museum was awarded the status of Full Accreditation by the Museums, Libraries and Archives Council (MLA); this was renewed in 2010. As the only Accredited Museum in the Isles of Scilly, the Museum is recognised by English Heritage as the depository for material from past, current and future excavations.

Amongst nearly 7000 accessions, the majority of which are archaeological material, the Museum holds finds and records from sites of all periods on Scilly. These include Bronze Age urns from Knackyboy and other entrance graves, the sword and mirror from an Iron Age cist on Bryher, prehistoric and Roman finds from Nornour and Early Christian material from Samson, St Helen's and Tean. There is a large collection of sherds, stone and metal tools and objects from these and many other sites throughout the Islands. They show a rich mixture of imports and local products and can be used to identify Scilly's connections with both mainland Britain and various areas on the Continent at different periods.

Much effort has gone into tracing material from past Scillonian excavations. The process of repatriating artefacts and records began some years ago: for example, Penlee House, Torquay Museum and Historic Environment, Cornwall Council, have sent boxes of material to the IOSM and more is expected, especially from the Royal Cornwall Museum.

Apart from the displayed objects the Museum has extensive stored material. This is shelved in standard boxes, and has been catalogued by site and period; it is available on request to visiting researchers.

Archives

The records, drawings and photographs of excavations carried out on the Islands are stored in files and plan drawers; these are also catalogued and available for research. The entire Accessions Register has been computerised and there is also a computerised index of the Museum storage areas.

2.13.2 The Royal Cornwall Museum

The Royal Cornwall Museum (RCM) holds the majority of the archaeological finds and archives of Cornwall and a proportion for the Isles of Scilly on behalf of the Royal Institution of Cornwall (RIC), a charitable trust (RIC Isles of Scilly Collection List, July 2011). The RCM is a Museums, Libraries and Archives 'accredited' museum. The RCM is also the 'designated' English Heritage store for Cornwall, eligible for storage box grants. All archaeological archives for Scilly are now deposited with the IOSM, St Mary's.

In 2003 the RCM became one of only 14 museums across the country to receive temporary financial support from the Department of Culture, Media and Sport, and Education and Skills, through a programme called Renaissance in the Regions. The purpose of the funding was to build capacity in important regional museums, enabling them to become centres of excellence. Isles of Scilly finds and archives have benefited from recent work that has included reconciliation of documentation and repackaging of the collection in the Basement Store to current standards and a refurbishment of the main gallery displays where Isles of Scilly material is on display.

Over the years, the museum has provided free resources for the study of the Isles of Scilly collection in terms of a specialist archaeological curator and conservator,

equipment and customised research space within the stores. The Curators' library and the Courtney Library reference library are available to researchers.

Some of the archives were placed at the RCM so that the IOSM could exhibit 'displayable' material while the RCM housed the archives for researchers, due to lack of space at the IOSM (Anna Tyacke, previous Curator, pers comm). The majority of the Isles of Scilly collection was 'deposited' by the Ministry of Works/Historic Buildings Commission/English Heritage or the Duchy and are, effectively, on loan. Loan agreements are currently being agreed by the Duchy and the RIC.

Since 2005, the IOSM has requested the return of the above archaeological archives and RCM is in liaison with the Duchy and English Heritage to facilitate the repatriation. The material from Nornour (TRURI: 1993.34) and the Isles of Scilly Electrification Project (TRURI: 1992.100) was returned in 2012 and East Porth, Samson (TRURI: 1993.95), when HE Projects has completed analysis; the remaining archives will then be returned in liaison with the IOSM over a period of time. Some finds and archives were donated to the RCM and these will remain at the museum but could be loaned to the IOSM. The RCM will retain material donated and currently on display in the new refurbished gallery.

2.13.3 Other archives

The British Museum holds some artefacts, including Bonsor's finds from Porth Hellick Down, Normandy Down, Obadiah's Barrow, and Samson. Other material is held at the Museum of Archaeology and Ethnology in Cambridge, the Museum of the Torquay Natural History Society and in an English Heritage store. Some material is also held in private collections of antiquities. Archives for current projects are held by various contractors and researchers.

2.14 Approaches to the study of the historic environment of islands

Approaches to island archaeology were developed during the New Archaeology phase in the early 1970s and, as suited theoretical perspectives of the time, drew inspiration from the natural sciences, particularly island biogeography used to explain island biota. Of special interest was the publication of McArthur and Wilson (1968) that set out principles for understanding the processes for island colonisation by flora and fauna. Two key aspects of their treatise still remain influential today, the first is the distance vs. area effect and the second is founder effect.

Distance vs. area effect sets out the limits to island settlement by proposing the fairly straightforward formula of the distance vs. area, where increases in the distance to the nearest mainland amplifies barriers to successful colonisation while the size of the island (its area), may mitigate this to a certain extent if it is large, but will also exacerbate barriers to colonisation if it is a small island. A complicating matter is 'stepping stone islands' which also have to be considered. Simply stated, big islands close to the mainland will present few barriers to colonising species, while small islands distant from the mainland will present the biggest barriers to colonising species and the expectation will be that there will be minimum species diversity on such islands. An add-on to the latter condition is that 'founder effect' may occur where a species finds itself in a new ecological niche, unchallenged by other species as it had been in its mainland habitat, and evolves in relative isolation to become distinct from its mainland ancestors. This for animals often appears to result in dwarfing, where the animals become much smaller than their mainland variety.

In archaeology, island biogeography has been enlisted to explain why the Mediterranean islands were colonised by humans in the order that radiocarbon dates of the time suggested (Cherry 1981), and why people in islands constructed unique structures, like the carved heads of Easter Island and the Copper Age temples of Malta (Evans 1973).

While few island archaeologists now accept that human activities are governed by the same principles that apply to other animals or plants, the theories developed in island biogeography still have a role in thinking through the differences that islands hold, compared to communities in mainland situations. Cyprian Broodbank (2000) has proposed the term 'islandscapes' as a way of recognising that the seascapes and landscapes that make up island environments are distinct from landscapes as viewed through the typical lens of landscape archaeology. Paul Rainbird (2007) has gone a step further in highlighting the ascendancy of the marine environment in island lives, arguing for an 'archaeology of the sea' that acknowledges the values of fusion, fluidity and flux in island histories. In this, initial assessments of island history should assume, until shown otherwise, that the sea was a highway, allowing for the fusion of cultural traits from a variety of directions, for fluidity in the directions of the contacts and flux in the amount of contacts in any particular direction, with, on occasions, extremely limited direct contact, but always with the expectation among island peoples that contact with outsiders may occur at any time.

Approaches to island archaeology may help us to problematise and theorise our expectations of the Scillonian archipelago at various phases in its history. Firstly, we need to know that we are dealing with an island or islands for any particular time, limiting the use of island archaeology (except in a purely metaphorical sense), to the last 12,000 years. A proxy indicator of a long-term separation from the mainland comes in the form of the Scilly Shrew (*Crocidura suaveolens*), which is unique to the islands (Hosfield *et al* 2008). Within this period it would be useful to know whether other islands, capable of acting as stepping stone islands for humans, existed between Scilly and the mainland. The Seven Stones and other submerged rocks may have remained usable islands for millennia (Hosfield *et al* 2008).

In regard to accessibility, Scilly is visible from the mainland despite the 45km of current sea gap. Potential past usable islands at Wolf Rock or Seven Stones would reduce sea distances to some 32km, but given the low altitudes would not much improve inter-visibility. In human history the earliest evidence for sea travel beyond the sight of land dates to the Upper Palaeolithic in Melanesia, where the island of Manus was settled. More locally we might compare Scilly to St Kilda, the most famous of Atlantic archipelagos, which has evidence of occupation in the Neolithic (Fleming 2005). Scilly in the Neolithic would have attained a similar altitude as today, 50m. By comparison, St Kilda reaches 430m and is 64km from the stepping stone islands of the Outer Hebrides. At the end of the Neolithic in c 2500 cal BC Scilly had an estimated area of 31.7 sq km (Charman *et al* 2012) while St Kilda had an area probably similar to today of 8.5 sq km. Both island groups are situated in the Atlantic and both could be seen from their nearest occupied neighbours. The conditions relating to St Kilda, in its small size and greater distance from neighbour, relative to Scilly, should indicate from an island biogeography perspective that the colonisation of Scilly was an easier undertaking. In regard to the evidence for Neolithic settlement on St Kilda, Fleming (2005, 54) concluded that 'it is obviously wrong to think of the archipelago as so 'marginal' that it was settled reluctantly and late, or so remote that any prehistoric culture must necessarily have developed an eccentric character.'

Anthropologists of migration point out that it is rare for colonisation to take place by *ad hoc* exploration, but is rather usually direct and to a known place. Once settlement has occurred connections with the source community are typically maintained. Causes of migration can be varied but in general fall into the category of either 'push' or 'pull' effects (*cf* Anthony 1990). A push effect occurs when there is an impetus in the home community for a group to depart; this may be, for example, a coping mechanism for population pressure, what Lewis Binford (1968) called 'budding off'. The alternative is the pull effect where there is something at the target destination which attracts people to migrate; this may be the exploitation of new (but known) resources. A further conclusion drawn from the anthropology of migration is that migration is rarely a single event, but more usually a process where the visits to a place only ultimately through time result in long-term residential relocation (Curet 2005). This assumes a migration

and can be considered in relation to the evidence for Scilly, but it may also be the case that new, particularly neighbouring islands come into the orbit of a community through expansion, and there are many circumstances where archipelagos and mainland are part of the same community. For the Aegean Sea Christos Doumas (2004) has noted that all islands have a corresponding part of a larger land mass, the mainland or a bigger island, with which they share cultural links; this he calls the *peraia*.

Moving beyond the direct associations between a community and its *peraia*, the Scilly archipelago, with West Penwith, is geographically located on a significant node in relation to what, following Sir Cyril Fox (1932), we may call the 'western seaways'. Since the first half of the twentieth century geographers and archaeologists have recognised the important influence of the sea in understanding the human history of the Atlantic archipelago. Much of the focus was on maritime routes connecting large parts of the central archipelago; that is, on the east side of Ireland and west side of Britain. Routes were envisaged plying in both directions through and across the Irish and Celtic Seas and heading south to the Bristol Channel, the south-west peninsula of Britain and to Brittany and Galicia and beyond. In the north these passed through the Inner and Outer Hebrides, continuing to the Northern Isles of Orkney and Shetland and beyond, towards the Faeroes, Iceland and Scandinavia. Jonathan Wooding (1996) has reviewed the character of the western seaways, noting the coastal geography, prevailing winds, currents, tides and shoals and off-shore rocks, and finds that 'The societies which have existed along the western sea lanes have regularly navigated these forbidding waters, finding various technological solutions to the conditions. Initially disconcerting, the conditions command respect, but are not so terrifying as to compel travellers to go overland by preference' (Wooding 1996, 6).

It is the long-term experience of these waters which is essential to their use and as such, it is not surprising that a number of the scholars of the western seaways were based at the University in Aberystwyth where the vista from their windows overlooking the Irish Sea may have helped shape their perspectives. Emrys G Bowen was professor of geography and anthropology and was the last great advocate of the western seaways concept in its first phase. Bowen (1970; 1972) provides a history of the development of thinking on this matter, showing that those educated in classical traditions were influenced by concepts of the Roman Empire where 'the sea divides; the land unites'. Later scholars such as O G S Crawford, H J Fleure and Sir Cyril Fox took the opposite view and can be seen to be influential in allowing the archaeologist Gordon Childe to imagine the Irish Sea as having 'grey waters as bright with Neolithic argonauts as the western Pacific is today' (quoted in Bowen 1970, 14). This view of the western seaways was taken up with vigour and they became identified as the source for everything from megalithic tombs (Daniel 1941) to Celtic Christianity (Bowen 1969). However, although such other luminaries of twentieth century archaeology as Christopher Hawkes, Stuart Piggott, Raleigh Radford and Charles Thomas had found good uses for the concept, in the 1970s few other academic scholars shared such vistas and, with prehistorians rejecting migrationist and diffusionist views of culture history, the western seaways fell out of favour. In the twenty-first century the western seaways have been revived by a new group of scholars, not that they completely went away, as illustrated in a review by Cummings and Fowler (2004). Many archaeologists are finding the role of communication by sea a useful explanatory framework for understanding both similarities and differences in the material remains in various periods of the prehistoric past (e.g. Cunliffe 2001). The nuanced interpretations available derived from the debates following the rejection of culture history as a descriptive and explanatory device. This means that archaeologists are now better able to interrogate and interpret exotic material and proxy indicators as evidence of overseas, and perhaps regular, contact, without compromising understandings of local identity and difference.

3 Palaeolithic and Mesolithic

Edited by Trevor Kirk with contributions from Kevin Camidge, Dan Charman, Ralph Fyfe, Charles Johns, Andy M Jones, Steve Mills, Jacqui Mulville, Amelia Pannett, Paul Rainbird, Helen M Roberts, and Robert Scaife.

3.1 Introduction

The main characteristics of Scilly's Palaeolithic and Mesolithic resource are summarised in this review. These periods make brief cameo appearances in earlier assessments of Scilly's archaeological resource but have produced scant archaeological and environmental evidence by comparison with Scilly's post-Mesolithic prehistory (Ashbee 1986; Ratcliffe 1989; Ratcliffe and Straker 1996; Johns *et al* 2004). However, the depth and quality of environmental data, especially for the Mesolithic, has been substantially improved by the results of the Lyonesse Project (Charman *et al* 2012) and there is emerging evidence for Mesolithic flintworking to supplement the only previously recorded flint scatter of this period at Old Quay, St Martin's (Pannett 2007). The main characteristics of Scilly's Palaeolithic (c 700,000 to 10,000 BP) and Mesolithic (c 10,000 to 6,000 BP) resource are summarised in this review.

3.2 Palaeolithic (c 700,000 – 10,000 BP)

3.2.1 Landscape and environmental background

Current knowledge of the Palaeolithic environmental background of Scilly was summarised recently for the South West Archaeological Research Framework (Hosfield *et al* 2008, 27). The earliest pollen evidence for vegetation in the Devensian in south-west England is from Scilly and published by Scourse (1985; 1986; 1991) as part of his research investigating the extension of the Irish Sea glacier. Formerly it was thought that glacial ice did not spread as far as the south of England in the last glacial episode (c 21,000 BP) but his research suggests that it reached the northern flanks of Tresco, Bryher and St Martin's. The resulting glacial deposits include flint (originally from the floor of the Irish Sea) that was subsequently exploited by prehistoric communities in Scilly.

Scourse also carried out pollen analyses on organic lenses thought to have accumulated in small lakes or ponds during the build up of solifluxion of granitic head in Scilly. These are exposed in section at Carn Morval and Watermill Cove, St Mary's, and Bread and Cheese Cove, St Martin's, and the pollen suggested open, largely grassland-dominated herbaceous vegetation during the Upper Palaeolithic. Similar arctic tundra conditions were also identified in deposits from Porth Seal on St Martin's. High *pinus* values were interpreted as evidence of climatic deterioration (*cf* Hosfield *et al* 2008, 28).

3.2.2 Palaeolithic archaeology

The only possible Palaeolithic artefact from Scilly is an unprovenanced curved-backed point held at the Royal Cornwall Museum (Truro). This piece may be an Upper Palaeolithic 'penknife point', such as are found in cave sites throughout Britain (Berridge and Roberts 1986, 8-9; Fig 3.1), although similar points are also known from Mesolithic contexts on the mainland.

This artefact is an intriguing indication that people were visiting the archipelago during the climatic improvements ahead of the Younger Dryas cold spell. The penknife point, a member of the continental *Federmessergruppen*, ought to date to between 12,000 and 11,000 BP, after Scilly had become separated from the mainland. The distribution of earlier Upper Palaeolithic material from the Aurignacian (c 31,000 BP), has led Paul Pettit (2008) to propose a small-scale colonisation event taking in the west of Cornwall, presumably including Scilly, thus allowing for the possibility of finds from that period, although there is currently no other evidence of human presence in Scilly during the Palaeolithic.



Fig 3.1 The penknife point from Scilly (photo: Anna Tyacke)

3.2.3 The Isles of Scilly resource: aspects and prospects

The palaeoclimatic and palaeoenvironmental evidence from Watermill Cove Site of Special Scientific Interest (SSSI), St Mary's, is indicative of the potential for sites primarily known (or designated) for their geological qualities to illuminate the Palaeolithic environment and climate in Scilly. Extreme serendipity might also lead such sites to yield Palaeolithic material culture and/or fauna.

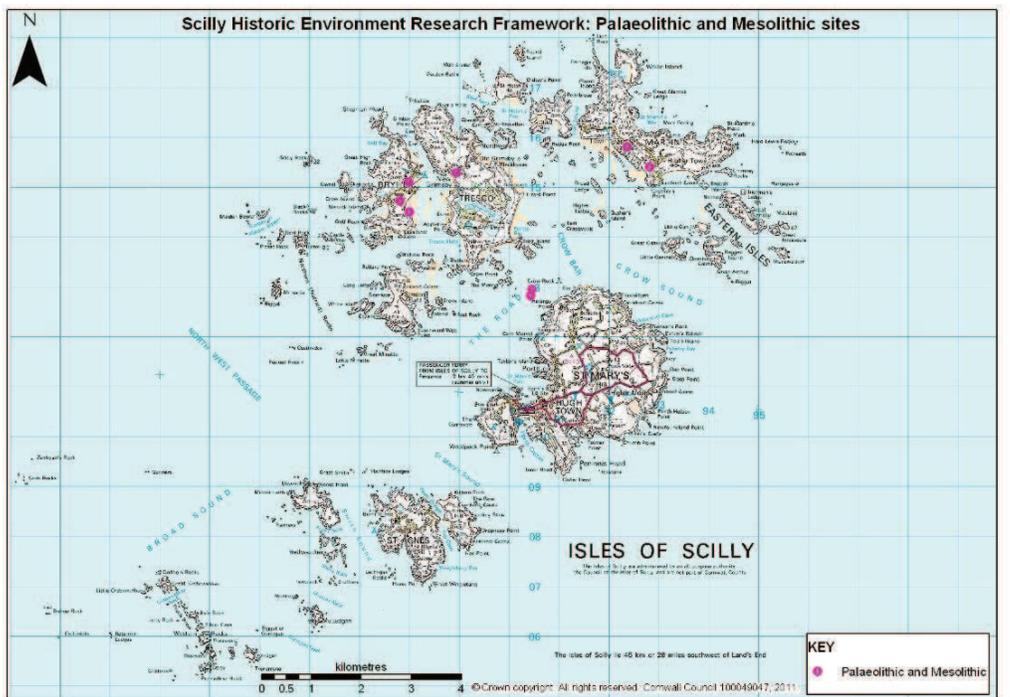


Fig 3.2 Distribution of Palaeolithic and Mesolithic sites recorded in the Cornwall and Scilly HER

3.3 Mesolithic (c10,000-6000 BP)

3.3.1 Landscape

The sub-surface bathymetry between the Isles of Scilly and Penwith, Cornwall, suggests that the archipelago may have been surrounded by the sea as early as c 12,000 BP (c 13,130–12,700 cal BC). Rocks, such as the Seven Stones and one or two others that are currently largely submerged, would have remained as islands for some millennia. Although this hypothesis is untested, a possible Late Glacial or Early Postglacial separation raises interesting questions related to island biogeography. The unusual small mammal fauna goes some way to support early island status. Pernetta and Hanford (1970) and Turk (in Butcher 1978, 99) discussed the apparently relict Postglacial survival of the root vole (*Microtus oeconomus*) and the presence of the Scilly Shrew (*Crocidura suaveolens*), which is only found on the islands (cf Hosfield *et al* 2008, 27).

Current evidence suggests that at the end of the last glaciation the archipelago may have consisted of a single landmass roughly 17km long and 8.5km wide stretching from the Western Rocks to the Eastern Isles and from Peninnis to Shipman Head (e.g. Johns *et al* 2004). As the ice sheets melted the sea level rose and perhaps by as early as 4,000 BC submergence of low lying areas led to the formation of a number of different islands. To the north the modern islands of St Mary's, Bryher, Tresco, and St Martin's were encompassed in one large island, while to the south St Agnes, Annet and the Western Rocks constituted three smaller tracts of land (Fig 3.3).

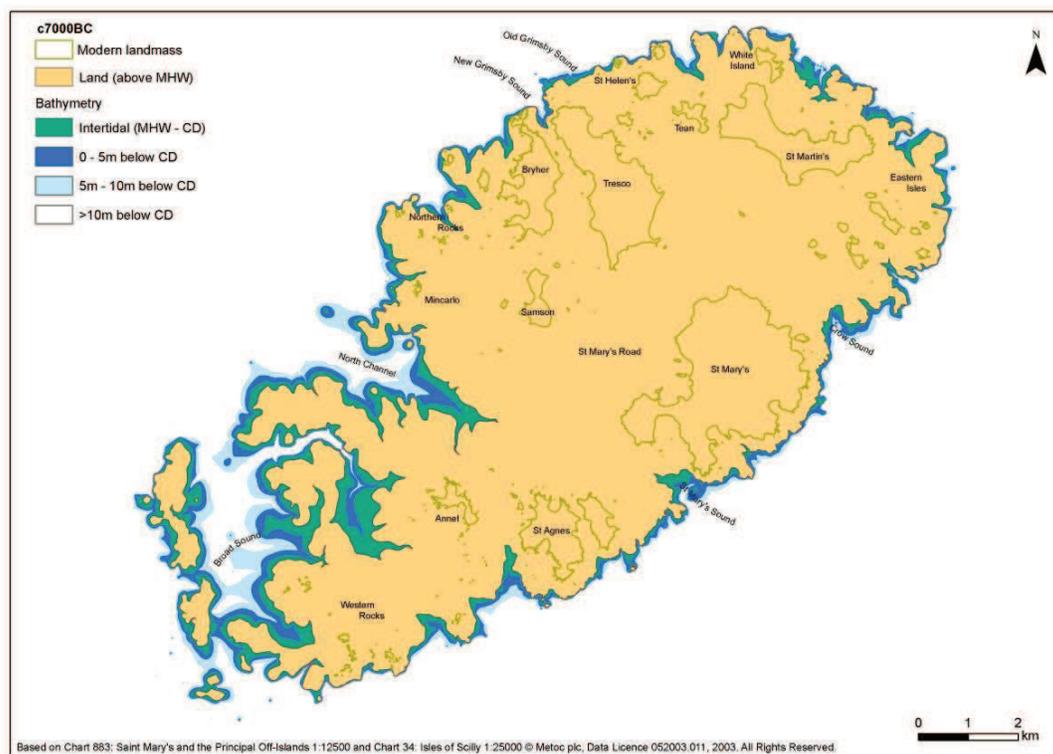


Fig 3.3 Inferred submergence model c 7,000 BC, based on data from the Lyonesse Project (Charman *et al* 2012) and shown as simulations of the modern Admiralty Chart. Land area (brown) is defined as above MHS, and the intertidal area (green) as between chart datum and Mean High Water Springs(MHS). Blue and white areas are below chart datum (dark blue 0 to-5 m CD, pale blue -5 to -10 m CD, white < -10 m CD)

3.3.2 Environmental background

The Mesolithic environmental background of Scilly was summarised recently by Hosfield *et al* (2008, 41) for the South West Archaeological Research Framework. The longest pollen sequence is that at Higher Moors, with Late Mesolithic oak-ash and hazel woodland at the base of the sequence (5725-5378 cal BC, HAR- 3695). Birch scrub in this context may indicate woodland regeneration following small-scale clearance by gatherer-hunters (Scaife 1984; Ratcliffe and Straker 1996; Hosfield *et al* 2008, 41).

The Late Mesolithic-Early Neolithic intertidal peats at Par Beach on St Martin's and at Porth Mellon on St Mary's indicate mixed deciduous woodland with birch, oak, hazel, lime, holly, alder and willow (Ratcliffe and Straker 1996; Hosfield *et al* 2008, 41).

Samples of intertidal peat taken from Porth Hellick, St Mary's, in September 2010 for the Lyonesse Project indicate establishment or expansion of hazel-oak woodland at the beginning of the Mesolithic: 9750-9280 cal BC (OxA-23858, 9945 ±60) and 9450-9280 cal BC (SUERC-32915, 9450-9280 cal BC) (Charman *et al* 2012).



Fig 3.4 Mesolithic submerged forest in St Mary's Roads (photo: Kevin Camidge)

A submerged forest was discovered on the seabed in St Mary's Roads by diver Todd Stevens in 2006. Subtidal samples from the site taken during the Lyonesse Project indicate rapid changes in Mesolithic forest conditions, although the deposits may be compressed and it is possible that the changes occurred over a longer period of time. The pollen spectra show a sequence of vegetation change through the Mesolithic period. A herb-rich grassland was gradually colonised by oak, birch and hazel woodland. A large peak in charcoal at the transition to the overlying peat is associated with a peak in birch and a decline in oak, suggesting possible disturbance or clearance by fire, followed by a phase which sees recovery of oak-dominated woodland, with an increasingly wet surface indicated by the presence of willow. The final phase sees a change to an open marsh dominated by sedges, changing to grass dominance, with increasing levels of salinity possibly from rising sea-levels (Charman *et al* 2012).

Lyonesse Project subtidal samples from the channel between St Martin's and Nornour indicate open ground with moderate-high saltmarsh indicators and low background

woodland in the later Mesolithic, at 5310-5050 cal BC (SUERC-32919, 6215 ±35) (Charman *et al* 2012).

3.3.3 The Isles of Scilly resource: aspects and prospects

Mesolithic flints are recorded at:

- Old Quay, St Martin's (assemblages from eroding cliff-face combine Mesolithic and Neolithic flints and Early Neolithic Hembury-style Ware);
- Knackyboy Cairn, St Martin's (borer-needle in association with flints in rock cleft);
- The Brow, Bryher (Mesolithic and Neolithic flints);
- The Town, Bryher (Mesolithic blade);
- Veronica Farm, Bryher (tranchet axe sharpening flake);
- New Grimsby, Tresco (possible Mesolithic bladelet);
- Halangy Down, St Mary's (geometric microlith);
- Porthcressa, St Mary's (unfinished pecked hammer); and
- Unprovenanced flints (including Larnian blades).

Ashbee (1986, 185) suggested that, although there was meagre positive evidence of Mesolithic occupation in Scilly, rising sea levels may have obliterated much evidence for occupation during this period. Artefactual evidence has not greatly increased in the last 25 years, the main discovery being the 20 or so pieces collected from the cliff face at Old Quay, St Martin's, which is the only identified Mesolithic flintworking site on the Islands (Ratcliffe 1989, 33; 1994, 13). Although the evidence is sparse, it has long been considered that Scilly was visited on a seasonal basis by groups of Mesolithic hunter gathers travelling by boat from the mainland (e.g. Ratcliffe 1989, 33; Ratcliffe and Johns 2003, 3).

In 2006 Amelia Pannett carried out an initial assessment of the lithics collection held by the Isles of Scilly Museum, as part of the 'Islands in a Common Sea Project' (Pannett 2007). Clear evidence for Mesolithic activity was present in the archive, with several collections of blades, many of which showed characteristic signs of Mesolithic technology: platform preparation and dorsal scar patterns indicative of the use of a carefully prepared blade core. Crested and truncated blades were also recognised, together with two roughly manufactured microliths (Pannett 2007).

Despite the unprovenanced character of the material examined in the lithic archive, it provided important details about the nature and potential of the resource on Scilly. The range of tools recovered by collectors is interesting and adds further to the current slight evidence for Mesolithic occupation in the Islands. Aside from the examination of excavated lithic assemblages, there are a number of known findspots which could be systematically investigated in order to recover complete *in situ* assemblages, in particular Old Quay on St Martin's and a further scatter of lithics from a garden on the south side of the island. Both assemblages would benefit from assessment, perhaps using a test pitting strategy to determine the extent and nature of the *in situ* material. Fieldwalking in available fields could also be undertaken to identify further scatters and determine their distribution within the landscape.

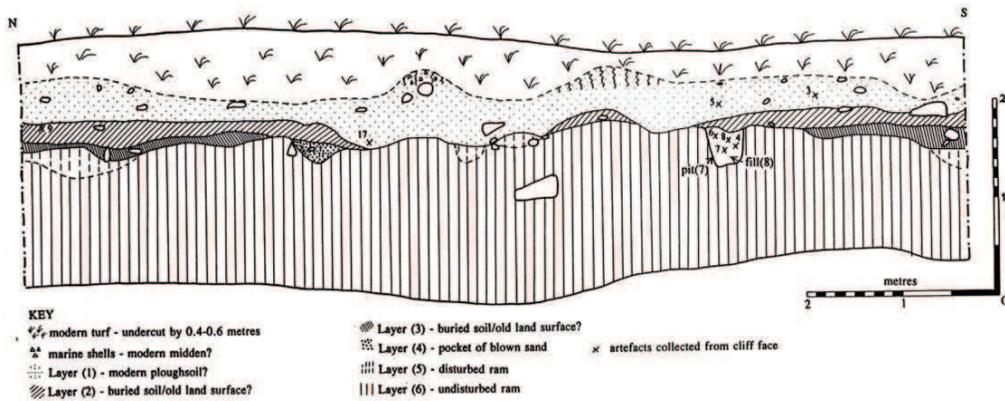


Fig 3.5 Detail from the cliff section at Old Quay St Martin's, drawn by CAU in 1993

It is possible that further Mesolithic flints from Scilly reside unidentified in museum collections (e.g. Royal Cornwall Museum, British Museum) and in private collections. Review of stone assemblages from Scilly by a lithic specialist may reveal previously unidentified Mesolithic material in existing museum archives and private collections. It is important that the results of such a review should be widely disseminated.

3.3.4 Animals

In common with more northerly British outer island groups, and unlike the Channel Islands (e.g. Lister 1995), there is no evidence for pre-glacial fauna on Scilly. Research suggests the islands were periglacial during the Ice Age and, while there is the possibility of continuity for some terrestrial species (e.g. the Scilly Shrew), the survival of any other species remains unknown. Even in the absence of terrestrial food species the Islands would have provided substantial marine resources for any early settlers. There is recent evidence suggestive of human occupation as early as the sixth millennium cal BC from burning events in the pollen record (Charman *et al* 2012) and this date is in agreement with data from Scottish isles where even the more remote northerly island groups, with a similarly sparse terrestrial fauna, were inhabited (e.g. Shetland and Orkney). British inner islands and coastal sites have provided the best evidence for early human animal interactions through the direct reconstruction of diets using stable isotope analysis of skeletal remains. Analysis revealed that Mesolithic people who lived relatively close to the coast relied on a wide resource base, exploiting a significant proportion of marine and terrestrial foods (e.g. Schulting *et al* 2003).

Paul Ashbee considered that the question of deer in Scilly was by far the most important concern for vertebrate fauna study, with bones of large and small red deer having been found at Halangy Porth, St Mary's, on St Agnes and on Nornour (Ashbee 1986, 194-5). It is possible that red deer had been introduced by the Mesolithic period and that woodland burning was intended to encourage the growth of new willow shoots that would attract red deer to feed (J Mulville, pers comm), supporting the idea of an early controlled, insular deer economy suggested by Ashbee.

There are indications, for example, that island environments in Scotland were being adapted for human use by the introduction of red deer, and any such Mesolithic activity in Scilly may be established archaeologically by proxy indicators from similarly introduced species.

The identifiable Mesolithic flints indicate that fisher-gatherer-hunter peoples exploited the resources of the Islands. Coastal inundation is likely to inhibit the search for sites of this period but well-preserved submerged remains from the Mesolithic have been identified in the Solent. The evidence of domestic cattle in a midden at Ferriter's Cove in south-west Ireland, dated to 4495-4195 cal BC, has been proposed as a seeding of

stock by Late Mesolithic peoples in an environment where indigenous large mammals had not existed prior to human seaborne colonisation (Woodman and McCarthy 2003). Domesticated cattle would only have been available on the European continent, suggesting long-distance contacts by sea, necessitating the rounding of the South West peninsula, perhaps even via Scilly, and showing that as far back as the Mesolithic contact by sea was not by necessity with nearest neighbours. As in many of the Scottish islands, deliberate seeding of red deer has been argued for Late Mesolithic Ireland, but it has also been proposed that the people there were more reliant on marine resources than their neighbours across the Irish Sea. This may have been true for the seasonal visitors to Scilly in the Mesolithic too, perhaps continuing into the Neolithic. In this regard, it is important to note the discovery and excavation of wooden fish traps along the former Liffey estuary in modern Dublin, the traps consisting of staked fences and baskets (McQuade and O'Donnell 2007). The pull effect for Mesolithic seafarers may have been Scilly's coastal flats, at a later stage inundated, providing myriad opportunities for the trapping of fish, with the outer shore providing hunting grounds for seal and sea birds. The Mesolithic-Neolithic transition in Scilly may be illuminated by further work at sites that have yielded material culture of both periods, notably Old Quay, St Martin's.

3.3.5 Transport

No remains of prehistoric boats have been found in Scilly. The most likely type of boat used by Mesolithic adventurers to the islands would have been hide boats made by stretching stitched-together animal skins over a lightweight framework of wood or wicker. This makes a very lightweight boat, which can be bowl- or boat-shaped. Hide boats vary in length from 1.5m (usually circular) to about 10m; 12m is the practical limit for this type of construction (McGrail 1998). Another common form of prehistoric boat is the log boat but European logboats are generally considered to be only suitable for use in extremely calm waters and not as seagoing craft (Ransley *et al* 2011). There is no evidence of mast steps or the use of oars in Europe until the middle of the first millennium BC: '*Mesolithic and Neolithic seamen would have used paddles*' (McGrail 2001).

3.4 Scientific dating

3.4.1 Radiocarbon dates

The 50 radiocarbon determinations listed in Figure 3.6 have all been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period to which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they appear.

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
Q-2410	34,500+ 985 - 800	38284-36878	Porth Seal	Organic deposit	Scourse 1991
Q-2408	33,050+ 960 -800	36576-35040	Watermill Cove	Organic deposit	Scourse 1991
Q-2409	25,670+ 560 -530	28752-28332	Porth Seal	Organic deposit	Scourse 1991
Q-2356	24,490+ 960 -860	27651-26651	Carn Morval	Organic deposit	Scourse 1991

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
Q-2358	21,500+ 890 -800	24141-23256	Carn Morval	Organic deposit	Scourse 1991
SUERC-38109	11385 ±35	11410-11190	St Mary's Roads	Sediment humin fraction from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38108	11315 ±40	11370-11150	St Mary's Roads	Sediment: humic acid from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38104	11035 ±35	11150-10730	St Mary's Roads	Sediment humin fraction from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38103	10950 ±35	11010-10700	St Mary's Roads	Sediment: humic acid from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38102	10670 ±35	10740-10600	St Mary's Roads	Sediment humin fraction from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38101	10535±35	10670-10460	St Mary's Roads	Sediment: humic acid from submerged clay & peat	Marshall <i>et al</i> 2012
OxA-23858	9945 ±60	9750-9280	Porth Hellick	Wood: single twig fragment, 19cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-32915	9915 ±35	9450-9280	Porth Hellick	Wood: unidentified twig, 24cm below surface of intertidal peat	Marshall <i>et al</i> 2012
OxA-25790	9185±45	8550-8280	Great English Island Neck (Nornour Channel)	Charcoal, knotted wood fragment too distorted for identification, 0-1cm below surface of submerged peat	Marshall <i>et al</i> 2012
SUERC-40873	8740 ± 35	7960-7600	St Mary's Roads	Organic clay: humin fraction from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-40872	8375 ± 35	7540-7340	St Mary's Roads	Organic clay: humic acid from submerged clay & peat	Marshall <i>et al</i> 2012
OxA-25612	7490 ± 45	6450-6230	St Mary's Roads	Plant remains, indet. possible stem fragments from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38100	7695 ±35	6610-6450	St Mary's Roads	Sediment humin fraction from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-38099	7500±35	6440-6250	St Mary's Roads	Sediment humic acid, from submerged clay & peat	Marshall <i>et al</i> 2012
SUERC-28995	6980 ±35	5990-5750	St Mary's Roads	Peat: humic acid, 27-28cm below surface of submarine peat	Marshall <i>et al</i> 2012
HAR-3695	6630±100	5725-5378	Higher Moors	Peat	Scaife 1984
HAR-3695	6630±100	5490-5050	Higher Moors	Peat	Scaife 1984
SUERC-40883	6325 ± 35	5370-5220	St Mary's Roads	Peat: humic acid, 20-21cm below surface of submarine peat	Marshall <i>et al</i> 2012

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
SUERC-40884	6315 ± 35	5370-5210	St Mary's Roads	As SUERC -40883	Marshall et al 2012
SUERC-26629	6230 ±35	5310-5060	St Mary's Roads	Wood (<i>Betula</i> sp.) embedded in eroded surface submarine peat	Marshall et al 2012
SUERC-32919	6215 ±35	5310-5050	Great English Island Neck (Nornour Channel)	Monocot stems, <i>Phragmites</i> ? 2 cm below surface of submerged peat	Marshall et al 2012
SUERC-28994	6175±30	5220-5020	St Mary's Roads	Wood (<i>Alnus glutinosa</i>) just below upper charcoal peak	Marshall et al 2012
SUERC-40877	6170 ± 35	5220-5000	St Mary's Roads	Peat: humic acid, 11-12cm below surface of submarine peat	Marshall et al 2012
SUERC-40882	6170 ± 35	5220-5000	St Mary's Roads	Peat humin fraction, 14-15cm below surface of submarine peat	Marshall et al 2012
SUERC-40881	6160 ± 35	5220-4990	St Mary's Roads	Peat: humic acid, 14-15cm below surface of submarine peat	Marshall et al 2012
OxA-25613	6130 ±40	5220-4940	Great English Island Neck (Nornour Channel)	c 30 monocot stem fragments, 1 cm below surface of submerged peat	Marshall et al 2012
OxA-22484	6134±34	5220-4960	St Mary's Roads	Wood (<i>Betulaceae</i>) embedded in submarine peat 14-15cm below surface. Major decline in tree pollen	Marshall et al 2012
SUERC-40876	6120 ± 35	5210-4940	St Mary's Roads	Peat: humic acid, 11-12cm below surface of submarine peat	Marshall et al 2012
SUERC-38084	6040±35	5050-4830	St Mary's Roads	Monocot stem fragments + wood fragments, 27-28cm below surface of submerged peat	Marshall et al 2012
SUERC-28993	6010±35	5000-4790	St Mary's Roads	Leaf (<i>Phragmites</i> sp.) from seabed peat	Marshall et al 2012
SUERC-40875	6010±35	5000-4790	St Mary's Roads	Peat: humic acid 1-2cm below surface of submarine peat	Marshall et al 2012
OxA-25614	5995 ±40	5000-4780	Great English Island Neck (Nornour Channel)	2 monocot stem fragments, 5-6 cms below surface of submerged peat	Marshall et al 2012
SUERC-40874	5965±35	4950-4720	St Mary's Roads	Peat: humic acid, as SUERC-40875	Marshall et al 2012
SUERC-26631	5860±35	4800-4620	St Mary's Roads	Wood (<i>Salix</i> sp.) from submarine peat	Marshall et al 2012

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
OxA-25690	5784±33	4720-4540	St Mary's Roads	Wood (<i>cf Salix/Populus</i> sp.) 21-22cm below surface of submerged peat	Marshall <i>et al</i> 2012
OxA-23861	5720 ±55	4710-4450	St Mary's Roads	Unidentified woody stems, 9-10 cms below surface of submarine peat	Marshall <i>et al</i> 2012
SUERC-26630	5680 ±35	4610-4450	St Mary's Roads	Leaf: <i>cf Phragmites</i> sp. embedded in surface of eroded submarine peat	Marshall <i>et al</i> 2012
GU-5222	5410±70	4366-4046	Par Beach	Oak in surface of intertidal peat	Ratcliffe and Straker 1996
GU-5061	5210±50	4230-3947	Par Beach	Base of intertidal peat deposit	Ratcliffe and Straker 1996
OxA-21892	5614 ±37	4540-4350	St Mary's Roads	Leaf: <i>cf Phragmites</i> sp. (D Charman) – not the same leaf as SUERC-26630. Embedded in surface of eroded submarine peat	Marshall <i>et al</i> 2012
SUERC-38241	5590 ± 30	4490-4350	St Mary's Roads	Twig and seeds (<i>Betula</i>), 9-10cm below surface of submerged peat	Marshall <i>et al</i> 2012
OxA-25681	5570±32	4460-4340	St Mary's Roads	Wood (? <i>Betula</i> , not oak). As SUERC-38241	Marshall <i>et al</i> 2012
SUERC-32918	5445 ±30	4350-4240	St Mary's Roads	Bulk: <i>Phragmites</i> stems, 9-10 cms below surface of submarine peat	Marshall <i>et al</i> 2012
OxA-25680	5435±32	4350-4230	St Mary's Roads	Wood (? <i>Betula</i> , not oak), 2-2.5cm below surface of submerged peat	Marshall <i>et al</i> 2012
SUERC-32917	5360±30	4330-4050	St Mary's Roads	Wood (unidentified stem fragment), 0-1cm below surface of submarine peat	Marshall <i>et al</i> 2012

Fig 3.6 List of Palaeolithic and Mesolithic radiocarbon dates

3.4.2 OSL dating

Optically Stimulated Luminescence (OSL) dating was carried out on quartz from an intertidal sample recovered from Porth Hellick and Porth Mellon, both on St Mary's (Roberts, in Charman *et al* 2012).

Location	Lab no.	Context	Material	OSL Age	Calibrated date (95% confidence)
Porth Hellick, St Mary's	184/LPPH-1A	0.16 ± 0.01m	Quartz	12970 ±690 BP*	12350-9580 cal BC
Porth Mellon, St Mary's	161/LPPM1-1	15-17cm below surface of intertidal peat	Quartz	4750 ±1210 BP*	5170-3210 cal BC

Fig 3.7 List of Palaeolithic and Mesolithic OSL Ages expressed as years before AD 2010, rounded to the nearest 10 years

4 Neolithic and Early Bronze Age

Edited by Andy M Jones from contributions by Eleanor Breen, Kevin Camidge, Dan Charman, Ralph Fyfe, Duncan Garrow, Charles Johns, Trevor Kirk, Steve Mills, Jacqui Mulville, Amelia Pannett, Henrietta Quinnell, Paul Rainbird, Helen M Roberts, Gary Robinson, Katharine Sawyer, Fraser Sturt and Robert Scaife.

4.1 Introduction

The Isles of Scilly contain a large number and diverse range of Neolithic and Early Bronze Age sites and artefacts ranging from pottery through to entrance graves, which are now thought to be of Bronze Age date. The Islands also hold a wealth of environmental data in the form of buried peat deposits. The rich archaeological record and the Islands' position at the 'gateway' to the Atlantic façade means that there is the potential for major research questions relating to the transition to the Neolithic, as well as questions relating to patterns of exchange and contact throughout the Neolithic and Bronze Age periods. The main characteristics of Scilly's Neolithic and Early Bronze Age (c 4000 cal BC to 1500 cal BC) resource are summarised in this review.

4.2 Chronology

While it is accepted archaeological terminology it must be emphasised that it is artificial to draw a boundary between the Late Neolithic and the Early Bronze Age. At a national scale the Bronze Age marks the introduction of metalwork, changes in pottery styles, the increased occurrence of single burial traditions and changes in monumental building. At a regional scale there are hints at broad changes in religious, agricultural and social practices during the later half of the third millennium cal BC, but there is also evidence for a large measure of continuity in the archaeological record. Present evidence might suggest that Scilly was not permanently settled until the Early Bronze Age and that the few Neolithic artefacts and features found represent occupation of a more temporary nature. However, with the exception of the tor enclosures and quoits in Penwith and taking into account the small scale of the Islands, the evidence may not be that different from the mainland – i.e. small pits, pottery and flints – and Cornwall is not considered to have been unpopulated during the Neolithic.

The Early Bronze Age of Scilly saw major interventions within the Island landscape. The archaeological record for this period is marked by burial and ceremonial monuments such as entrance graves, cairns and standing stones, and an apparent absence of recognisable settlement. Because of the very definite increase of burial-type monuments in Cornwall during the full Early Bronze Age after 2000 BC, a Beaker phase is distinguished between 2500-2000 BC, although there is currently only one sherd of possible Beaker pottery from Scilly (from Bonfire Carn, Bryher).

For the purposes of this chapter the periods have been broken down as follows: Early Neolithic (c 4000 cal BC to 3400 cal BC); Middle to Late Neolithic (c 3400 cal BC to 2500 cal BC); Beaker phase (c 2500-2000); Early Bronze Age (c 2000 to 1500 cal BC). Tables of radiocarbon determinations and OSL ages relating to the period are presented at the end of the chapter (Figs 4.13 and 4.14).

4.3 Environmental background

By the beginning of the Neolithic period St Agnes and the other western islands had separated from the main island, and the development of a more extensive intertidal zone continued throughout the period. St Mary's Roads, which had previously held freshwater marsh, was succeeded by saltmarsh by c 4000 cal BC (Fig 12.6). By the end of the Neolithic in 2500 cal BC a major change to the main island group had occurred, with tidal flooding between the islands at high tide. Tresco, Bryher and Samson remained joined at all times but some areas between St Martin's and Tresco and a wide area of St Mary's Roads were below MHS and consequently flooded during many high tides (Fig 4.1; Charman *et al* 2012).

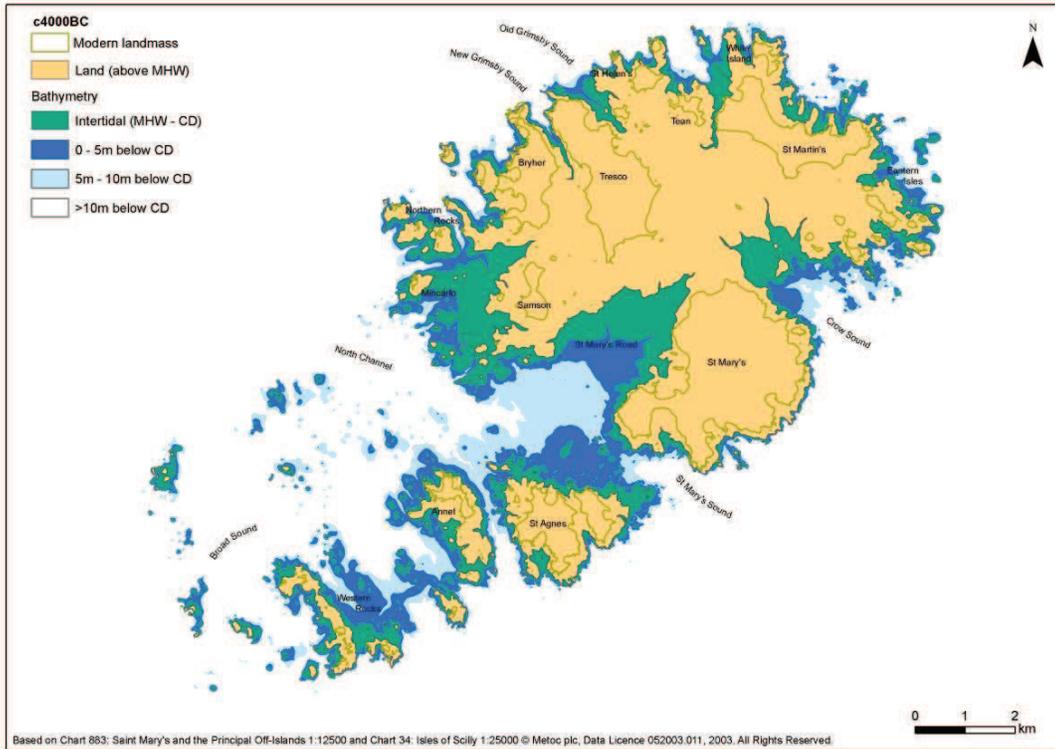


Fig 4.1 Inferred submergence model, c 4000 cal BC, based on data from the Lyonesse Project (Charman et al 2012); all details as in Fig 3.3

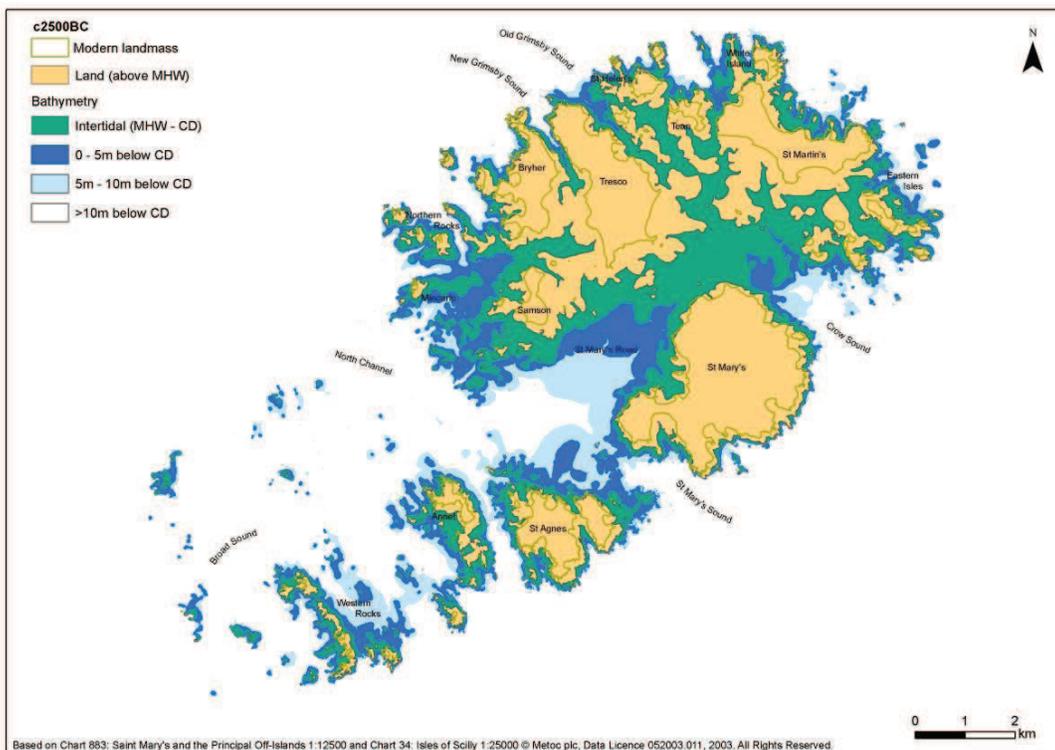


Fig 4.2 Modelled land and intertidal areas, c 2500cal BC; all details as in Fig 3.3

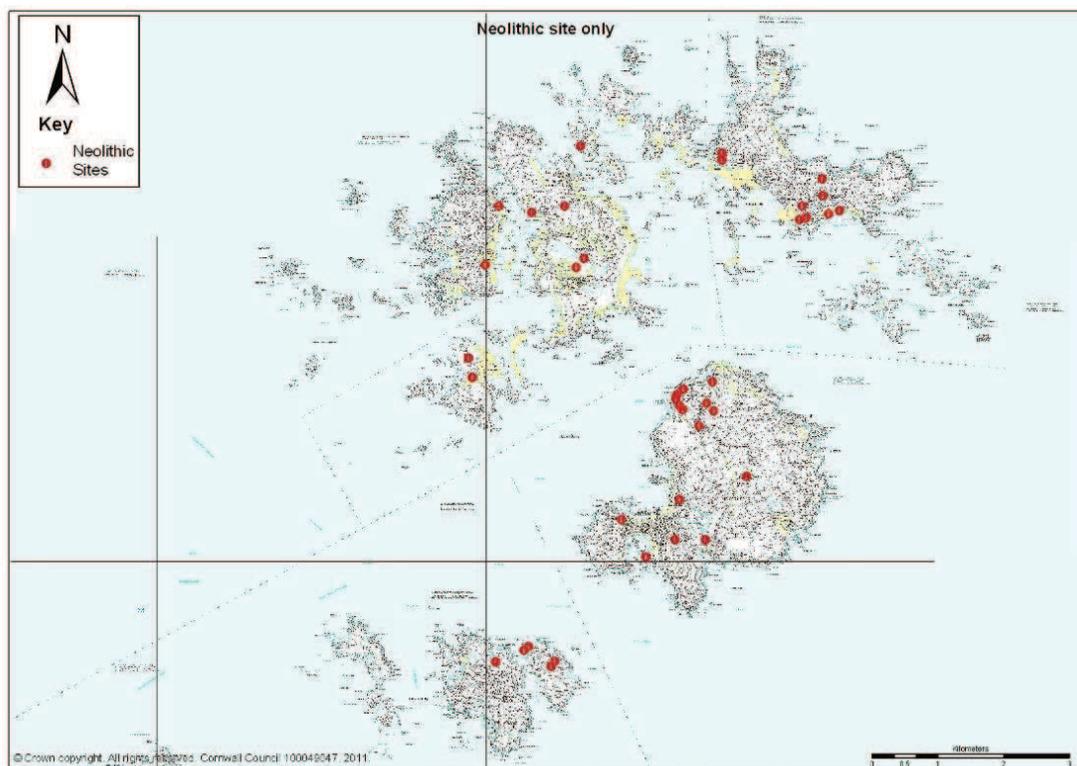


Fig 4.3 Distribution of Neolithic sites recorded in the Cornwall and Scilly HER

The Neolithic and Early Bronze Age environmental background of Scilly was summarised recently for the South West Archaeological Research Framework (Wilkinson and Straker 2008, 72). There are three published palynological studies of Neolithic and Bronze Age environments from the Islands (Ratcliffe and Straker 1996, 32). The longest and best known pollen sequence is from Higher Moors on St Mary's (Scaife 1984), which begins in the Mesolithic at 5725-5378 cal BC (HAR-3695) and indicates oak woodland with an understorey of hazel (Wilkinson and Straker 2008, 72).

The picture of the Neolithic environment is of localised disturbance of woodland, while the main phase of clearance, eventually leading to the present heathland environment, dates from the Late Bronze or Early Iron Age (Dimbleby *et al* 1981; Scaife 1984; Ratcliffe and Straker 1996, 33). The prominence of birch in the Neolithic flora of the Isles of Scilly is notable, especially given that it is a minor component of woodland elsewhere in the South West at this time. Nevertheless, given that most studies have been carried out on St Mary's, it is at present uncertain how widely any of these interpretations can be applied to other islands in the archipelago. Even on St Mary's there are many local variations in the vegetation despite its small area (Wilkinson and Straker 2008, 72).

At some point prior to the Middle Bronze Age, 1608-1056 cal BC (HAR-3694), there was small-scale woodland clearance at Higher Moors; cereal and ruderal pollen suggest this was for cultivation. Later in the Bronze Age the woodland regenerated and birch rose to dominance, although cereal and herbaceous pollen were still present, indicating continued cultivation. Organic deposits associated with a radiocarbon date of 4230-3947 cal BC (GU-5061) were investigated at Par, or Higher Town, Beach, St Martin's, in the early 1990s (Ratcliffe and Straker 1996, 19). These contain pollen spectra indicative of hazel-oak woodland during the Earlier Neolithic. Later (but before 3486-3017 cal BC, GU-5060), birch had colonised and replaced much of the hazel, but unlike

at Higher Moors there is no evidence of forest clearance. Palynological examination of a later coastal peat exposure at Porth Mellon, St Mary's, dating to 3263-2703 cal BC (GU-5394), suggests local woodland dominated by birch, with a lesser component of hazel and oak. After 2866-2204 cal BC (GU-5396) lime appears and oak becomes a more prominent element of the local woodland, but once more there is no evidence of clearance (Ratcliffe and Straker 1996, 25; Wilkinson and Straker 2008, 72).

Analysis from a peat sample taken at Porth Mellon, St Mary's, during the Lyonesse Project in 2010 suggests a slight decline in birch, hazel and oak woodland cover and an increase in open disturbed or pastoral grassland during the Late Neolithic or Early Bronze Age (OSL age of 4750 ±1210 in an interbedded sand layer). The range of herb pollen and the absence of saltmarsh plants suggest drier grassland well above any tidal influence.

4.4 Landscape

4.4.1 The landscape context of monuments

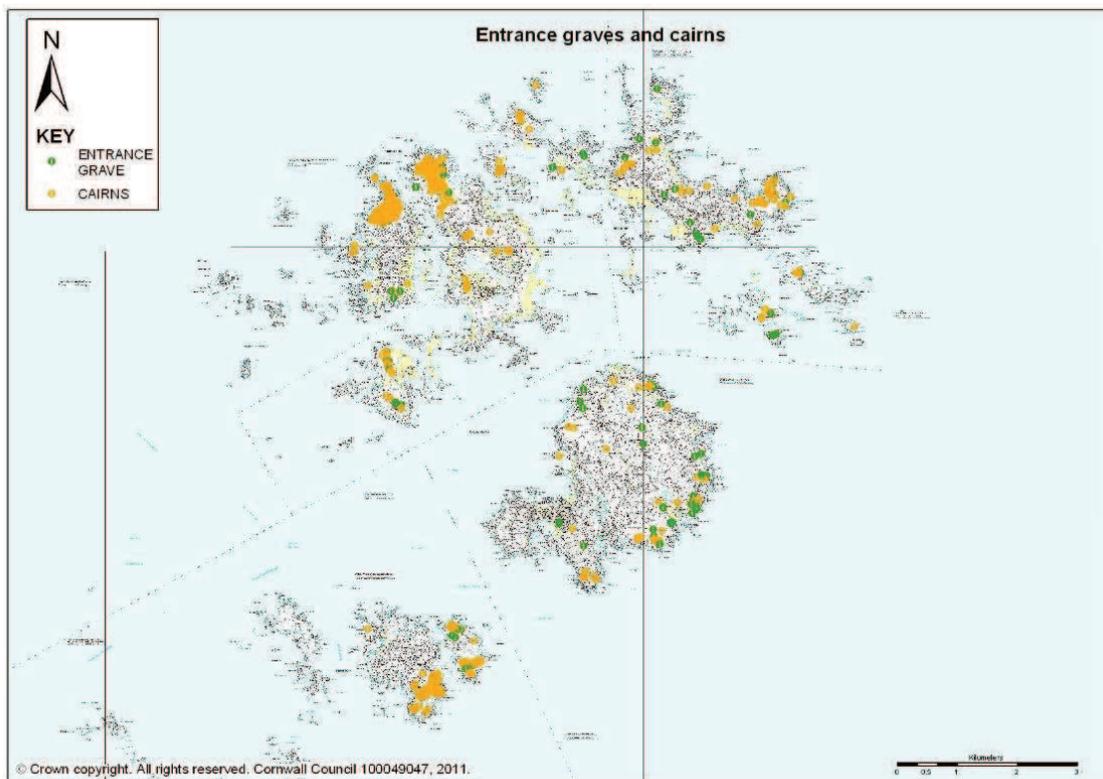


Fig 4.4 Distribution of entrance graves and cairns in Scilly

Entrance graves occur around the current coastline of the archipelago where they are a feature of higher ground (Fig 4.4). They usually occur in clusters, as on Porth Hellick Down, or as linear groupings of monuments, as on North and South Hill, Samson. They are not evenly distributed throughout the archipelago being absent from St Agnes, Ganilly and Annet and with restricted distributions on Bryher and Tresco. Over 40% occur in only three locations: the island of Samson; Porth Hellick Down, St Mary's, and Kittern Hill, Gugh. While it has been argued that proximity to the sea may have been an important aspect in their landscape setting they are absent from areas on the periphery of the archipelago, such as Shipman's Head Down, Wingletang Down and Peninnis Head, which command the most extensive views over the sea. It should be noted that this is their present day distribution and there is evidence for inland sites on

St Mary's being destroyed for agriculture in the late nineteenth and early twentieth centuries (Robinson 2007).

There is an interesting absence in Scilly of earlier megalithic tombs such as portal dolmens which are found in Penwith, Ireland, and France. It is possible that 'propped stones' could have acted as small megalithic tombs although none of these have been dated (see below, section 4.4.2)

The overall distribution of cairns is different to entrance graves, although they are also found predominantly on high ground around the coastline (Fig 4.3). Most significantly, cairns occur in large cairnfields on exposed headlands around the periphery of the archipelago, notably on Wingletang Down, St Agnes, Shipman Head Down, Bryher, Castle Down, Tresco, and Chapel Down, St Martin's. The location of cairns around the periphery of the archipelago is emphasised further by the presence of cairns on small, barren rocky islets such as Menawethel and Round Island.

The majority of standing stones or menhirs are found in the northern part of St Mary's, with one on Gugh and three on St Martin's. Most are on hilltops, ridges or slopes. The site of a destroyed example on St Mary's is at the highest point of the Islands. Two other stones are in very prominent positions and can be seen from some distance. The distribution pattern emphasises the north and east coast of the archipelago, which Robinson (2007, 126) considers may relate to the importance of the easterly approach by seafarers to the Islands.

A possible stone row has been recorded on Par Beach, St Martin's, located midway along the beach between the high and low tide (Fulford *et al* 1997; Ratcliffe 1990, 22, figs 8 and 9) (below, Section 4.7.3). Two more stone alignments were identified on Castle Down/Tregarthen Hill, Tresco, by Dave Hooley during the Monuments Protection Programme (MPP), the status of which is supported by Tom Greeves (pers comm to Charles Johns).

No stone circles have so far been confirmed on Scilly, although Borlase (1756) described a stone circle or 'Druid Temple' on Salakee Down, St Mary's, the site of which has recently been identified and recorded (Seaney 2010a). The stones appear to be natural, most of them being earth-fast boulders defining a platform of bare rock. Despite being natural, they may be significant as they are set in the wider Bronze Age ceremonial landscape of Salakee and Porth Hellick Downs. Two possible submerged stone circles have been reported to the west and south of Samson.

Thomas (1985) suggested there was a considerable period of agricultural land use before the construction of entrance graves and it has been suggested that six entrance graves post-date cultivation lynchets; i.e. terraces formed on sloping ground by the downhill movement of cultivated soil (Coate 1994). Bant's Carn (Fig 4.4) and Upper Innisidgen Cairn on St Mary's appear to sit on earlier lynchets; a lynchet runs up to the east side of Lower Innisidgen entrance grave; the entrance grave on John Batty's Hill, St Martin's, appears to sit on top of a low lynchet; one of the entrance graves on the island of Arthur in the Eastern Isles stands on the lip of a lynchet; and Obadiah's Barrow on Gugh seems to be set into a lynchet, apparently post-dating its establishment (Coate 1994, 35-5, 64-5). An entrance grave at the foot of Halangy Down merges into a lynchet that partly overlies it. The discovery of a Neolithic flint adze or axe below Knackyboy Cairn on St Martin's may also indicate prior cultivation on the site (O'Neil 1952). Most of the Penwith entrance graves are sited within shallow valleys suitable for settlement or close to prehistoric field systems (Jones and Thomas 2010, 289).

The pits at East Porth, Samson, which contained the largest assemblage of Neolithic pottery so far found on Scilly were in a low-lying location that is now a beach but would have been about 1km inland in the Early Neolithic (Neal, forthcoming).



Fig 4.5 Buzza Hill, St Mary's, showing the entrance grave with Hugh Town beyond (photo: Cornwall Council)

4.4.2 The appropriation of natural topographic features

In Devon and Cornwall, tors and distinctive hilltops may have been referenced and embedded within the routines of everyday life, and in cosmological and mythical structures (Bender et al 1997; Tilley 1995; Pollard et al 2008). Enclosures were built around some tors as such as Carn Brea, Helman Tor and probably Stowe's Pound during the earlier Neolithic while other outcrops were the focus for pit groups or artefact deposition in crevices (cf Pollard and Healey (eds) 2008, 78).

The topography of Scilly contains landscapes and seascapes which may have been perceived to have held liminal or supernatural properties, in particular, granite tors and fantastical rock formations such as on Penninnis Head, St Mary's, and Wingletang Down, St Agnes; on a wild day the latter feels like the edge of the world, literally. It is difficult to believe that such tors and rocks did not have a comparable significance for the early inhabitants of Scilly as those on the south west mainland did for people there. Robinson (2007, 16-18, 115, 128) has touched briefly on this theme but there is considerable potential for further research and exploration of the phenomenology of natural features on the Islands.

Scourse (1986, 81, fig 31; 1987) defines four tor forms on the Islands: horizontal, vertical, fill slope and erode, each type relating to variations in their geological formation, exposure and erosion. Robinson (2007, 115) has observed that entrance graves are consistently located in close proximity to granite tors and that through this their builders were emphasising the importance of such features in their everyday world. In particular Robinson (*ibid*, 129), considers that the incorporation of earth fast boulders within monuments emphasised the significance of particular elements of the natural world. He also (*ibid*, 115) catalogues instances of artefact deposition in tors: a ceramic vessel at Yellow Rock Carn (Lewis 1948, 7); a Late Neolithic/Early Bronze Age dolerite adze and pottery at English Island Carn, St Martin's (Ransom 1984, 194); a bronze dagger and comb-impressed urn at Cruther's Neck, St Martin's; and a stone

macehead found below a rock prominence at Block House, Tresco (Ashbee 1974; Hencken 1932; Lewis 1948; Ratcliffe 1989).

A type of site recently recognised in Cornwall is the 'pseudo quoit' or 'propped stone', found on Bodmin Moor at sites such as Leskernick and Tregarrick by Peter Herring, and in Penwith, for example, on Carn Galva (Blackman 2011). None of the Cornish examples are currently dated, although Early Bronze Age pits have recently been recorded beside a stone-setting near Sennen (Jones *et al*, forthcoming). Further examples have been recognised on Dartmoor and in the Channel Islands. Similar constructions ('earth-fast' monuments), of probable Early Neolithic date, are known from south-west Wales (Cummings and Whittle 2009, 165). There are a number of these sites on Scilly, although no systematic record has been made and they are not recorded in the HER (Fig 4.6).



Fig 4.6 Possible propped stone on Gugh (photo: Richard O'Neill)

4.4.3 Settlement

No Neolithic settlements have been identified to date, although submergence will have destroyed any low-lying or coastal sites; as most surviving prehistoric houses are unexcavated it is possible that some may overlie earlier structures. On current artefactual evidence the earliest indications of occupation appear to be at Old Quay, St Martin's, followed by East Porth, Samson, Porth Killier, St Agnes and Bonfire Carn, Bryher (below, section 4.5.2.3). The identification of early settlement has only come to light through the careful excavation of later settlements demonstrating the potential importance of certain locales within the island landscape throughout considerable periods of prehistory. The absence of identified permanent houses on the islands during this period may suggest a degree of residential mobility. It is possible that, as on the mainland, flint scatters and pits are more typical signatures of Neolithic settlement activity than structures.

Little is known about Early Bronze Age settlement sites on Scilly and sites which have demonstrated evidence for Early Bronze Age occupation also show evidence for later activity. A number of early features located beneath later settlements may be related to the Early Bronze Age. At Little Bay, St Martin's, a stone-lined pit was located below the floor of a Middle Bronze Age house. The walls of this house partially overlay this pit and a hearth had been constructed directly above it (Neal 1983, 52). A radiocarbon date from the hearth provided a date of 2125-1533 cal BC (HAR-4324; 3490 ±100 BP) suggesting that the pit was an early feature of this site. A similar stone-lined pit was found beneath a prehistoric house at Perpitch, St Martin's (O'Neil nd g), although in this instance there is no independent evidence for its date.

Rectangular stone-lined box hearths are the earliest features of settlements such as English Island Carn, St Martin's, and Nornour. At English Island Carn a sanded area and hearth was found beneath the floor of a later house where it was sealed by a thick layer of ash and soil containing substantial quantities of comb-impressed and cord-impressed pottery (O'Neil nd h; nd k). At Nornour the earliest features of the settlement comprised three stone-lined hearths and an arc of postholes (Butcher 1978). The dating of many of these early features remains unclear, but they might relate to the late third or early second millennium cal BC.

4.5 The material world

4.5.1 Material culture

Neolithic and Early Bronze Age culture is represented in Scilly by assemblages and individual finds of bronze, ceramics, and lithics; organic components of the material culture such as wood or leather have not survived.

The impressions of cord in various forms and of 'matting' on the bases of Early Bronze Age pottery have great potential to inform us about various aspects of cordage, mats, basketry and sewn items; preliminary work suggests that impressions on Scillonian ceramics differ in subtle ways from those on the mainland, thus confirming the impression of a developing sense of identity among Island communities (Owoc *et al* 2003; Manske *et al* nd; M Owoc, pers comm to H Quinnell).

Imported objects or artefacts include a group of nine glass beads and a star-shaped faience bead from Knackyboy Cairn (O'Neil 1952) and occasional non-local stones, such as the pumice found in an entrance grave at Porth Hellick (Hencken 1932, 20) and in a pit containing Neolithic pottery at East Porth, Samson (O'Neal, forthcoming). The latter may have been casual beach finds retained for their exotic quality.

4.5.2 Material extraction and artefact production

Metalwork

A few items of Early Bronze Age metalwork have been found on Scilly: a dagger from a burial at the Carrion Rocks, St Martin's (Ashbee 1974, 325), a copper alloy awl from Obadiah's Barrow (Hencken 1932, 28, fig 12) and the possible terminal of a bronze armlet and clip from a bronze earring from Knackyboy Carn (O'Neil 1952, 30; Ashbee 1974, 241).

Faience and glass

Nine glass beads and a star-shaped faience bead were recovered from Knackyboy Cairn (O'Neil 1952; Ashbee 1974, 115).

Ceramics

Neolithic

Early Neolithic ceramics probably belong to the South Western or Hembury style, represented by a few small assemblages and some single finds. However, the range of forms present is limited at present to plain bowls, with a possible carinated example

from Porth Killier, St Agnes (Quinnell, in prep a); the few lugs known are imperforate. The more distinctive features of the south western style, such as trumpet lugs and broad shallow bowls, have not yet been found. Fabrics appear to be distinctive amongst the granite derived material on Scilly, the matrix well mixed without large inclusions but with distinctive chunks of granite minerals added. The fabric of the assemblage from East Porth, Samson, is slightly different. Its matrix, although granitic, is smoother and finer and its added inclusions are predominantly vein quartz (Quinnell, in prep b). It is presumed that these granite fabrics were made on Scilly but probably used clay deposited by larger streams than survive today. A sherd of Lizard gabbroic clay, similar to that of fine wares from Carn Brea on the mainland, comes from the cliff face site at Old Quay, St Martin's (Quinnell 1994), and, if confirmed petrographically, represents the only currently known ceramic import to the Islands in the Neolithic. Robinson's (2007, 140) suggestion that most Scillonian Neolithic pottery used mixed gabbroic and granitic material is not supported by Henrietta Quinnell's observations.

One assemblage, East Porth, Samson (Quinnell, in prep b), comes from a pit, while that from Old Quay, St Martin's (Quinnell 1994), came from unspecified contexts in the vicinity of a pit; the context of a third, at Bonfire Carn, Bryher, is uncertain (Quinnell 1994). The relationship of the possible carinated bowl sherds from Porth Killier to a cist needs further consideration (Quinnell, in prep a). Sherds or small scattered groups were recorded at five locations during the 1985 Electrification Project (Quinnell 1994). Robinson (2007, 65) reports Early Neolithic sherds from a midden on Annet but Henrietta Quinnell is dubious about this ascription. No Neolithic ceramics can now be attributed to entrance graves. The material suggested as Neolithic by Hencken from Bant's Carn (1932, 24) and North Hill on Samson (1933, 27), an identification frequently quoted, is not of this date. Hencken (1933, 14) never saw the sherd from Bant's Carn and that from North Hill should, in the light of modern knowledge, belong to the Bronze Age. Recently Katharine Sawyer has traced George Bonsor's drawing of a possible Early Neolithic bowl from Bant's Carn (Hencken 1932, fig 10 B) and this is clearly marked 'Halangy Porth' (Bonsor 1899-1900): there are first millennium cal BC finds from Halangy Porth and this vessel may be of this date (see below).

No Middle Neolithic Peterborough pottery or Late Neolithic Grooved Ware are yet known from the Islands. Peterborough ceramics are virtually unknown in Cornwall although Grooved Ware groups are now being found, with some eight sites known (Jones and Quinnell 2011).

The suggestion by Robinson (2007, 54) that the lowest deposit of vessels at Knackyboy Cairn, St Martin's, with horizontal rows of comb or cord impressions above the girth, represents a local Late Neolithic Scillonian style lacks supporting evidence.

No Neolithic material from Scilly has yet appeared in a published pottery report.

Beaker Phase

No Beaker pottery has definitely been identified although a possible sherd with comb stamping and cord impressions comes from Bonfire Carn, Bryher (Quinnell 1994). The sherd from Halangy Porth interpreted by Ashbee (1983, fig 9, No 3, 25) as Beaker-related is better regarded, in the light of subsequent work, as Later Iron Age (Quinnell 1994).

Early Bronze Age

For the Earlier Bronze Age there are only four or five possible examples of mainland vessel types recorded. A Collared Urn, possibly from Normandy Down, was petrographically examined by Parker Pearson (1990, 14, no 180) and contained greenstone, which suggested that this vessel had been imported from the mainland: Henrietta Quinnell's discussions with Katharine Sawyer and Gary Robinson suggest that the provenance is uncertain. Sherds from Porth Hellick Down 'Great Tomb' with impressed cord chevron decoration are illustrated by Hencken (1932, fig 9) and photographs provided by Katharine Sawyer have been examined by Henrietta Quinnell:

the fabric appears to be granitic, so of either Cornish or Scillonian manufacture. These appear to belong to the Cornish Trevisker sequence and to be the only examples of this ceramic type so far noted on the Islands. Trevisker cord impressed ceramics were produced through much of the second millennium cal BC (Jones and Quinnell 2011). A single sherd, apparently in granitic fabric, with plaited cord chevron impressions, was found on the beach adjacent to Building 1 at Nornour (Butcher 1968, 71, fig 34 no 134); this also appears to be Trevisker. P8 from Porth Killier, found away from the main Bronze Age settlement, had a zone of fingernail and twisted cord impressions very much in the Trevisker fashion (Quinnell, in prep a). The illustration of a vessel from Halangy Porth described as 'reconstructed' (Ashbee 1972, fig 14, no 14a) has twisted cord impressed decoration and simple lugs and could also have Trevisker affinities.

The most common prehistoric ceramic in Scilly is a style unique to the Islands, best described as 'Scillonian Bronze Age'. This is found both in burial-related contexts such as entrance graves and cairns and in domestic contexts such as hut circles and middens. The vessels are generally biconical, sometimes bucket-shaped, sometimes plain, but often decorated with comb or cord impressions or incisions above their girth; lugs of various shapes are frequent. These features are all found in the mainland Trevisker ware of the Early and Middle Bronze Ages. However, Scillonian Bronze ceramics differ from Trevisker in four principal ways: decoration is almost always arranged in horizontal lines; more complex geometric patterns are absent; biconical vessels tend to be more curved; and lugs are more frequent, as are undecorated vessels. A further feature is the presence on some vessel bases of impressions apparently formed by mats. All data currently available indicate that the ceramics are of granitic fabrics likely to have been made on the Islands. Ashbee (1976, 17) provides a clear description of various granitic fabrics from Bant's Carn in which mineral components derived from the granite appeared to have been added, in differing quantities, to water-sorted granitic derived clay. There has been no comprehensive study of types and the relationship of these to varying decorative traits or lack of them.

The majority of excavations of burial-related sites yielding Scillonian Bronze Age ceramics have never been published, notably those carried out by George Bonsor around a century ago, and some records survive imperfectly. Bonsor's finds, reported to have been deposited in the British Museum, could not be found until recently (Robinson 2007, Appendix U; Katharine Sawyer, pers comm to Henrietta Quinnell) and so have not been available to inform subsequent work. The most important publication of a ceramic assemblage from an entrance grave is that by Ashbee (1976) from Bant's Carn, which covers both his own excavations and Bonsor's earlier work. The Appendix to Ashbee's report provides a useful list of finds from investigated entrance graves with details of publications where these have taken place. Ashbee makes it clear that ceramics in entrance graves, while sometimes found in quantity, were frequently deposited as sherds. The illustrations of the Bant's Carn assemblage show a range of rather similar biconical vessels with curved walls and lugs, some plain, some with a variety of decoration, reconstructed from very small pieces. The overall shape of the vessels appears to have been influenced by the illustrations in O'Neil's (1952) interim report on Knackyboy Cairn. The only other report to reasonably modern standards is that by Grimes (1960, 170-180) on the entrance grave at Salakee Down, St Mary's. This yielded two vessels found in fragments, both plain with lugs.

The only cairn with useful ceramic data is that at Porth Killier (Quinnell in prep a), with a small group of undecorated but lugged biconical vessels from a cist. Dates from the Porth Killier cairn await publication. There are problems with the data from this site (Jeanette Ratcliffe, pers comm to Henrietta Quinnell), although this is probably due to disturbance of the stratigraphy by burrowing rats (Andrew Young, pers comm to Charles Johns).

Datable associated objects are restricted to the group of Early Bronze Age faience and glass beads from Knackyboy Cairn. Consequently an initial date for these ceramics can not be established. O'Neil's interim report (1952) of Knackyboy provides a strong

indication of a stratigraphic sequence: curved walled vessels with cord or comb impressions were first deposited and then overlain by cremated deposits which included the faience beads. The deposits above appear to have contained vessels with incised decoration, with plain vessels more towards the top. Robinson (2007, 56), has published an interpretation of this sequence in which he places the lowest level, and the cord impressed vessels, at a date preceding the Early Bronze Age beads, in the Late Neolithic. From this he moves to situate most initial entrance grave deposits in the third millennium cal BC (*ibid*, 60).

The first radiocarbon determinations from an entrance grave have just been obtained (Mulville and Sawyer forthcoming): the sequence of ten dates from cremated bone from Knackyboy Cairn on St Martin's all fall within the period 1742 to 1266 cal BC (2 σ), while a date of 1893-1742 cal BC has been obtained from cremated bone in a cist from Old Town, St Mary's (*ibid*) and Robinson's interpretation must be regarded as speculation until Knackyboy Cairn is published. Katharine Sawyer's current work towards a University of Exeter Doctoral thesis on entrance graves is expected to clarify much of the ceramic and artefactual data.

An Early to Middle Bronze Age date for the principal use of entrance graves is supported by comparison with data from the Cornish mainland. If the analogy between Scillonian Bronze Age ceramics and Trevisker ware is valid, then the former belongs broadly within the second millennium cal BC. Trevisker cord decorated ceramics appear to have been selected – as opposed to those with incised decoration – for Early Bronze Age burial deposition (Quinnell, in prep c). This fits well with the apparent primacy of cord impressed vessels at Knackyboy Cairn and their frequency at Bant's Carn. The recent publication of Bosiliack entrance grave in West Penwith has produced radiocarbon dates centred on the seventeenth and sixteenth centuries cal BC for that site (Jones and Thomas 2010, 275). Jones and Thomas also re-emphasise the close relationship between Trevisker ceramics and entrance graves at Ballowal and Tregaseal (*ibid*, 282), and redraw attention to an Early Bronze Age radiocarbon determination at Tregiffian (*ibid*, 284). In Cornwall large and complex structures associated with burial appear to belong to the Early Bronze Age, with small monuments in unobtrusive positions continuing the position into the Middle Bronze Age (Jones and Quinnell 2011). This background would be compatible with some continued use, or building, of smaller monuments in Scilly in the Middle Bronze Age.

Two settlement sites with stone houses dating to the Middle Bronze Age have produced radiocarbon dates suggesting some form of domestic activity in the preceding Early Bronze Age. That at Little Bay, St Martin's (Neal 1983, 52), was associated with comb stamped sherds. The Nornour data (Butcher 1978) shows a range of plain vessels with occasional comb or cord impressed and incised sherds, most clearly accessible in Robinson's representation (2007, 192-5). The Nornour data may include early phases of stone buildings. East Porth, Samson, has also produced an Early Bronze Age date from a hearth with a small ceramic assemblage; it was adjacent to a structure in the cliff not fully investigated (Quinnell 1994). It is possible (below) that much of the material from Halangy Porth belongs to the Early Bronze Age.

Flint and stone

Flint artefacts in Scilly are usually isolated finds, but at a number of locations worked flint has been found in sufficient quantities to constitute a flint scatter; the majority date to the Neolithic or Bronze Age and represent prehistoric flint working sites. Flint scatters have yielded a variety of implements such as scrapers, awls, knives, and arrowheads. The Cornwall and Scilly HER records ten flint scatters on St Mary's, Tresco, and St Martin's. Notable Neolithic items include the axe or adze from below the main cairn material at Knackyboy Cairn (O'Neil 1952) and a recent find of an axe or adze from the west shoreline of Bryher (Fig 4.6).



Fig 4.7 Neolithic axe or adze found on the west shoreline of Bryher c 2010 (photo: Carl Thorpe)

Amelia Pannett's assessment of the lithics collection held by the Isles of Scilly Museum is discussed above in Section 3.3.3. A number of plano-convex knives were identified, all manufactured on large flakes, with invasive pressure flaking along one edge of the dorsal surface and rounding at the distal end. These are characteristic of the Early Bronze Age. Several arrowheads were examined, including barbed and tanged, oblique, chisel and triangular forms. All date to the later Neolithic and Early Bronze Age. Two possible leaf-shaped arrowheads were also recognised, but both were very rough and could actually be poorly manufactured triangular forms (Pannett 2007).

A large number of flakes and blades had abrupt retouch along one or both lateral edges, and several showed tentative evidence for use in the form of edge damage. A number of notched flakes and blades were also recognised. Abrupt retouch had been utilised in the manufacture of awls and borers, a range of which was represented in the collections. In a small number of examples, a double tool form was recognised, with a scraper edge on one end, and the opposite end retouched to form a borer. These tool forms are, again, not particularly diagnostic of a period, and could date from the late Mesolithic to the Early Bronze Age (Pannett 2007).

Despite the unprovenanced character of the examined material in the lithic archive, it provides important details about the nature and potential of the resource on Scilly. Evidence for the later Neolithic and Early Bronze Age is abundant, as expected, but there is little or no evidence for the early Neolithic. It is possible that such evidence is present, but currently invisible within the collections due to a lack of clearly diagnostic pieces (such as leaf-shaped arrowheads) and full working assemblages (Pannett 2007). It has been noted that artefacts reflecting 'early post-Mesolithic flintworking traditions' have been recovered from the area towards Kallimay Point, St Agnes (Quinnell 1994, 9).

Katharine Swayer has identified five pumice objects from Scilly. A fragment of pumice was found in one of the pits containing Neolithic pottery at East Porth, Samson (Neal

forthcoming a), by Bonsor at Porth Hellick entrance grave (Hencken 1932), two pieces from the western section at Nornour (Buthxcher 1978), Little Bay settlement (Neal 1983) and a surface find made by Alec Gray near Bant's Carn (Gray 1972).

4.5.3 Art

The only recorded non-ceramic art of this period in Scilly is the large stone incorporated within a house at Halangy Down, St Mary's, the surface of which is decorated with a pecked-out geometric design that Ashbee suggests represents a stylised face (Ashbee 1966, fig 2; 1974, 153).

During recent fieldwork associated with the English Heritage-funded Lyonesse project previously unreported rock art has emerged, an image pecked into a native granite boulder lying on the East Porth foreshore, Samson. The 'cigar' or 'boat-shaped' image, approximately 300mm by 100mm and aligned north-south, lies on the flat surface of a very large beach boulder and incorporates a natural fissure as a central division (Fig 4.8). Photographs of the image have been shown to various rock art specialists but as yet no parallels have been identified. Invoking the image as an early representation of one of the boats used to access the islands is very tempting, but in the absence of dating evidence this cannot be confirmed and the 'boat' could just as easily be referencing the post-medieval tradition of pilotage or is not a boat at all.

4.5.4 Subsistence

Animals

A domesticated, neo-natal calf's tooth from Par Beach, St Martin's, apparently associated with late Mesolithic peat deposits, has been radiocarbon dated to the Early Bronze Age, 2270–2030 cal BC (OxA-X-2465-6; 3740 ±30), which makes it the earliest recorded osteological faunal remain from Scilly and also the earliest indicator of animal husbandry on the Islands (Ratcliffe and Straker 1996, 29; Marshall and Bronk Ramsey 2012). Otherwise the earliest recorded faunal remains date to the Middle Bronze Age.

Ceramic and stone vessels were probably used for the storage of cereals and other foodstuffs and there is the potential that residue analysis of the Early Neolithic ceramic assemblages will reveal information about vessels contents (for example, ruminant, porcine, dairy and marine fats) and provide indirect evidence for early foods, and it is planned to carry out such analysis of the Neolithic pottery from East Porth, as part of the current 'Changing Patterns of Marine Product Exploitation in Human Prehistory via Biomarker Proxies in Archaeological Pottery' project led by Richard Evershed of Bristol University and Jacqui Mulville of Cardiff University.

Plants

The earliest Bronze Age assemblage, recovered during the 1989-93 Coastal Erosion Project, was a cache of barley from East Porth, Samson, dating to 2198-1772 cal BC (OxA-3649, 3620 ±70). This almost entirely comprised a cleaned crop of naked, probably six-row barley, providing good evidence that it had become crop in its own right by the Early Bronze Age. Hulled barley grain constituted less than 1% of the total assemblage. There was no chaff and only a single charred spike rush, emphasising that this was cleaned harvest which may have been burnt accidentally prior to consumption (Ratcliffe and Straker 1996, 10).

4.5.5 Transport

'The Isles of Scilly stand as an important reminder as to the seafaring abilities of Neolithic and Early Bronze Age people within this region'

(Ransley *et al* 2011)

Exactly when Scilly was first permanently settled is a matter yet to be precisely determined, but what is certain is that the first visitors and settlers came by boat. No Neolithic seagoing boats have been found in Scilly, or anywhere else in Britain, but it is

important to keep sight of the effects sea level rise have had on Neolithic and Bronze Age coastlines; most prehistoric boats have been found in estuarine and inland contexts.

Island communities are important when considering maritime transport as seafaring is implicit in trading and migration. Any artefacts originating outside the islands, such as the sherd of gabbroic pottery from Old Quay, St Martin's, attest to the use of boats to carry goods and people across the sea.

Clark (2004b, 7) suggests that the archaeology of south-east England and nearest France indicate that there may have been a tribal connection which straddled the English Channel during the Bronze Age. He notes that the journey from Dover to the nearest contemporary site in France is 55km, although the coastal voyages attested by the shale in the Dover Boat and a nearby find of a Trevisker-type urn from Cornwall indicate distances travelled of 220 and 450km respectively in the Middle Bronze Age. By the end of the Bronze Age a maritime community may have been established utilising the connecting waters of the English Channel / La Manche and possibly stretching along the south coast of Britain as far as the south-west peninsula and Scilly. Materials and artefacts in bronze, amber and gold formed elements of contemporary material culture and indicate that these connections stretched north to Scandinavia and south to the Alps. In this connection it is interesting to note Stuart Needham's concept of a 'maritory' in the Early Bronze Age, linking south-west England with mainland Europe, as indicated by the Rillaton cup and similar contemporary items (Needham 2009), although there is very little evidence for the circulation of south west tin or copper before the middle of the Bronze Age (the tin slag recovered from an Early Bronze Age ring cairn at Caerloggas on the St Austell granite being one of the notable exceptions (Miles 1975).

Gabriel Cooney (2004) envisages hide-covered keeled *currachs*, a type known historically in Ireland, plying the western seaways from the Neolithic onwards. Plank-built craft have been considered less likely in the western seaways due to a supposed lack of suitable timber on these exposed and damp coasts, but it can equally be questioned, particularly for Ireland, as to where the large mammals were found to provide hides for *currachs* in the earliest periods. Both hides and wood can be imported (by people with the appropriate seacraft), as can complete vessels, and the presence of both hide and plank traditions in the western seaways should not at this stage be discounted. Indeed, two Bronze Age find-sites of plank boats are known from Caldicot and Goldcliff at the head of the Bristol Channel on the Welsh side of the Severn Estuary (Nayling and Caseldine 1997). Plank boats are regarded as more stable and robust craft compared with hide boats and the sewn-plank design may be an innovation based on the earlier sewing of hides (Van de Noort 2004). Roger Mercer (2003) has pointed out, however, that an advantage of hide boats is that they are lighter and more easily carried or hauled across the isthmus of a peninsula to avoid the potential dangers of rounding headlands by sea. Such a scenario would perhaps allow the avoidance of Scilly, and the strait between the islands and Cape Cornwall, by taking boats over the 8km of isthmus between Mount's Bay and St Ives Bay.

Scilly lies some 45km from Cornwall, 190km from France and 240km from Ireland. The Islands are visible from Land's End on a clear day and given the lack of any known navigational instruments in this period, sight of the destination from point of departure was probably important. The difficulties of such journeys undertaken in prehistory are often the subject of speculation: '*The undertaking was formidable, but it was never insuperable*' (Thomas 1985).

To put the journey into some sort of perspective it is worth considering a recent crossing to Scilly from Cornwall in small kayaks. On 2 May 2009 seven individuals travelled from Lamorna Cove in Cornwall to St Mary's in small fibreglass kayaks propelled with double-ended paddles. The wind was light (Force 2) but a considerable Atlantic swell was running (5-6m claimed). The journey took 10 hours and was completed by six of the seven canoeists. One interesting observation made by the

participants was that as Scilly is so low-lying, the islands were not visible from the kayaks until very close at hand. Although this journey was made with the benefit of modern navigation (GPS), lightweight fibreglass kayaks and an accompanying safety boat, it illustrates that the journey can be made using very small boats and paddles when conditions are relatively benign (The Big 5 Kayak Challenge 2011). Rainbird (2007) discusses how animals could be used to help navigate and subtle changes in wave patterns also indicate land before it came into view; Pacific navigators in canoes were able to steer between low atolls without intervisibility using these techniques

4.6 Social relations

Thomas (1985, 103-9) created a model for early settlement in Scilly, identifying five 'founder' settlement sites each with an associated entrance grave. All the sites were in original inland locations which were sheltered, favourable spots, and three had produced early finds. He proposed that some 50 or 60 people were the founder settlers of Scilly and that subsequent settlement and ritual monuments developed from these original sites: below Knackyboy Cairn on St Martin's; Gimble Porth, Tresco; East Porth, Samson; Halangy Porth, St Mary's, and a site below Kittern Hill, Gugh. He envisaged the initial settlement of Scilly as being dispersed rather than nucleated, with the development of a segmentary society expressing its territoriality through similarly dispersed monuments with no sign of hierarchy, although the varying size of different entrance graves could be seen as reflecting a difference in social status or perhaps in function.

Robinson (2007, 145-6) suggests that Early Bronze Age islanders did not fix their settlements within specific locales and that settlement of this period appears fluid and transient, perhaps moving to different locations within the archipelago dependant upon season and availability of resources. This would suggest a degree of residential mobility with relatively little rigid differentiation of settlement space. By this scenario, a distinct class of settlement site would not have existed in this period and those activities defined as domestic took place in different island landscape settings, as yet largely unrecognised.

The abundance of monuments during this period suggests that by the Early Bronze Age the archipelago contained a resident population. In contrast to settlements, monuments of this period are substantial permanent structures that emphasise and fix specific island locales.

4.7 Monumentality, ritual and burial

4.7.1 Entrance graves

Scillonian entrance graves are small chambered cairns, comprising a roughly circular mound of stone and earth, revetted by a kerb and containing a chamber. The Cornwall and Scilly HER records 92 entrance graves, four of which are destroyed and 11 of which are only alleged (Fig 4.3). Whilst higher concentrations of entrance graves are found on Scilly, similar monuments are found on the Cornish mainland – around 13 entrance graves have been recorded in West Penwith (Barnatt 1982; Jones and Thomas 2011; Ratcliffe 1989).

O'Neil and Hencken's classification of entrance graves draws attention to the standardisation of monument plans and the presence of an open chamber, and therefore the ability to re-enter and reuse the monument after its construction (Hencken 1932, 1933). Although some standardisation exists, the excavated evidence demonstrates a greater variety of monument forms than is implied through the application of a single classification. In practice, the nature of the standing field evidence makes it difficult to always make clear distinctions between open chambers and cairns containing sealed chambers or cists.

As discussed above, the dating of Scillonian entrance graves has been problematic in the past but the new radiocarbon determinations from Knackyboy Cairn indicate that

their principal use was in the Early and Middle Bronze Age (Mulville and Sawyer, forthcoming). Comparison has been drawn between the Scillonian entrance graves and similar monuments located within the Tramore region of County Waterford, Ireland (Piggott 1954; Powell 1941), as well as with Irish wedge tombs which are dated to the Early Bronze Age (Jones and Thomas 2010). Typological parallels could also be made with a group of small passage graves which run up both sides of the Irish Sea and have an arguably early date (Lynch 1975; Powell *et al* 1969).

Monument construction

The size of Scillonian entrance graves varies considerably, with examples ranging from 5.2m to 22.7m in diameter. The mounds of stone and rubble that comprise entrance graves do not appear to have any discernible structure, although as there have been only a small number of recorded excavations this observation may be misleading. Kerbstones may comprise orthostats or stones laid as coursed walling. Chambers are constructed of a mixture of orthostatic and coursed walling, held in place by 'trig' stones along their bases. Surmounting these walls, large capstones are placed across the chamber and levelled into place with smaller stones to form a roof. The shape of chambers is remarkably consistent, being widest at their centres and narrowing towards their entrances and terminals. Evidence from four monuments suggests that some chamber walls were plastered with clay: Buzza Hill, Innisidgen Carn and Lower Innisidgen, St Mary's, and Knackyboy Cairn, St Martin's (Ashbee 1974; Borlase 1753; 1756; Hencken 1932; 1933; O'Neil 1952). The orange plaster used within the chambers derives from clayey deposits found within the *ram* which set hard when exposed. Chamber entrances are frequently restricted, in some instances, as at Porth Hellick Down (Ashbee 1974, 80), by blocking stones. A number of entrance graves stand out from the majority in both scale and complexity. For example, at Porth Hellick and Bant's Carn, St Mary's, and Obadiah's Barrow, Gugh, entrance to the monument's chamber is gained via a seemingly open passage where first an extension collar or platform has been constructed (Ashbee 1974, 79).

A recurrent feature of entrance graves is the incorporation of earth-fast boulders in their construction. In a few instances, the grounders incorporated are substantial and would have been clearly visible within the monument after construction. This feature of monument construction is, however, not limited to entrance graves but is equally apparent within cairns (see discussion below). On Porth Hellick Down an entrance grave, known as Peter's Barrow, contains a large natural grounder that forms a large percentage of the monument whilst a second entrance grave contains a large weathered grounder which forms the back and one of the sides of its chamber (Ashbee 1974, 83; Robinson 2007, 130). Similarly at Knackyboy Cairn, the back and part of the northern side of the chamber is formed by large grounder (O'Neil 1952, pl XV) whilst on South Hill, Samson, the lower part of the chamber of an entrance grave is formed by a grounder around which the monument was constructed (Ashbee 1974, 84).

Funerary practices and deposition within entrance graves

Entrance graves are associated with a range of practices. At Obadiah's Barrow, Gugh, unburned disarticulate bones were found in a layer of hard blackish soil on the stone paving that formed the floor of the later chamber over which were inverted pots containing creamed human remains (Hencken 1932, 28; Hencken 1933, 21; Ashbee 1974, 108-9). At Knackyboy Cairn, St Martin's, and North Hill, Samson (O'Neil 1952; Hencken 1933, 22), the excavation of chambers revealed deposits of dark soil (containing small abraded pieces of pottery) below stone paving, but, in contrast to Obadiah's Barrow, no evidence for inhumation burials was found in either chamber. This may be due to poor preservation of human bone (due to the acid soils), inadequate and limited excavation and disturbance due to later reuse of their chambers.

Later burials placed within the chambers of entrance graves were usually within urns and occasionally accompanied by grave goods such as beads, bone artefacts,

metalwork and selected pebbles and stones. Chambers appear to have received a series of burials throughout their use, although in the majority of cases it is not possible to reconstruct a sequence of deposition. It is also unclear why some entrance graves such as Knackyboy Cairn or Obadiah's Barrow should contain large quantities of burials whilst others contain only a few or none at all. Whilst this discrepancy may be partly due to the small number of monuments excavated and perhaps to later disturbances (at least one of the Penwith entrance graves was used as a piggery) this alone cannot explain this phenomenon and it is likely that social factors played a significant role, such as circulation of bones or perhaps the spreading of ancestral occupation material onto the fields.

Whilst containment of the dead was certainly one function of these monuments, the most common recorded contents of these monuments are deposits of dark greasy soil. Ashbee (1982a) and Thomas (1985, 138) describe these deposits as containing soil, small sherds of pottery, charcoal, ash (not associated with cremations) and pebbles, and have interpreted them as representing the deliberate deposition of occupation debris. Some of this material – such as non-local stone like the pumice found at Porth Hellick (Hencken 1932, 20) – could be interpreted as 'grave goods' or ritual deposits, whilst others, such as topsoil and ash, are not so easily explained. The consistent deposition of this material within the chambers of entrance graves suggests that such deposits were intentional and significant. An alternative interpretation of these deposits is that they are the scraped up remains of funeral pyres. However, whilst funerary pyres would have existed on the islands, evidence for their identification is sketchy (Ashbee 1974, 116-117; Cornish 1874). Once the visible remains of cremations, such as human bone, were collected from the pyre and deposited within urns, the remaining material might comprise a dark oily deposit of ash and soil. The description of the contents of entrance graves as 'dark and greasy' or as 'strong unctuous earth that smelt cadaverous' (Borlase 1754, 54) might fit well with this interpretation, but also with the deposition of midden material (discussed below).

Interpretation of the origin and function of entrance graves

Since the mid-eighteenth century antiquarians and archaeologists have conjectured upon the function of the Scillonian entrance graves. Borlase was the first to classify these 'ancient Sepulchres' into 'Caves' (exposed chambers without cairn and surrounding kerb) and 'Barrows' (entrance graves with cairn and surrounding kerb) (Borlase 1756, 14). The number of these monuments in Scilly led Hencken (1932, 38) to suggest that these Islands may have been regarded as one of the special abodes of the departed in ancient times. The term 'entrance grave' has only been used to describe this type of monument since the 1940s; before that they were referred to as barrows, covered galleries or passage graves (Jones and Thomas 2010, 283). Ashbee (1981) has argued for a Mesolithic origin but they are now generally considered to date from the Early Bronze Age onwards as they do in Cornwall (K Sawyer, pers comm; Jones and Thomas 2010). Whatever their origins, antiquarians and early archaeologists saw entrance graves as tombs, whether for single, collective or successive burials, but in the last 40 years or so alternative interpretations have been offered (*cf* Coate 1994, 18-9).

As a result of his investigations into the relation between entrance graves and field systems, the use of occupational debris and the lack of burials in some examples, Ashbee (1976, 21) suggested that, other than being mausolea, their function might have been as cult monuments to counteract soil impoverishment and loss of fertility. It has been suggested that deposits such as ash and topsoil were derived from settlements and could represent a transfer of material from the world of the living to the ancestors (Thomas 1985, 142; Robinson 2007, 21).



Fig 4.8 The 'Giant's Grave', Porth Hellick, St Mary's (photo: Cornwall Council)

Thomas (1985, 108, 126) viewed the prehistory of the Islands as that of a segmentary society expanding into estimated territories (above, section 4.6). He suggests that even if the monuments housed burials they were not originally constructed as tombs but as territorial markers, an outward and visible expression of ownership of defined territories by defined groups.

Because entrance graves are mainly situated on the periphery of the Islands and many are not connected with field systems, Ashbee (1986, 199) suggested that they might also have a maritime connection, being intended to ensure continuing fertility of the sea. It has been noted that the chambers of many entrance graves and cists in cairns are boat-shaped (Thomas 1985, 144). Robinson also points out that entrance graves are consistently located close to granite tors, which would have been important navigation aids since the Mesolithic, and that through the construction of these monuments the knowledge and significance of these tors became embedded within the lives of prehistoric islanders (2007, 115-20)

Thomas and Jones (2010, 289), in the most recent exposition on entrance graves, suggest that the Penwith entrance graves may have been communal shrines as much as being repositories for the dead.

The transition between the Early (2500 BC) and Middle (1500 BC) Bronze Age sees the most rapid loss of land and the development of the greatest extent of intertidal area at any time in the history of Scilly. The land area reduced from 31.7 km² to 18.4 km², compared to the modern extent of the islands of 14.7 km², so the loss of land during the period 2500-1500 BC was equivalent to losing almost the entire modern area of the Islands. Changes to the island landscape would clearly have been perceptible over a single human lifespan and thus must have been part of the backdrop against which everyday life and cultural development took place. We know that in Cornwall there is a huge increase in ceremonial monuments, mainly barrows, after 2000 BC (Jones 2005, 138), so, while it may be coincidence that the period of principal use of entrance graves corresponds with this time of rapid landscape change in Scilly, it is also possible that

their proliferation represents a structuring of the Island population's response to the drastically shrinking landmass and the concurrent agricultural implications.

4.7.2 Cairns and cists

The Cornwall and Scilly HER records a total of 384 cairns in Scilly, the majority of which occur within cairn-fields. Few cairns have been excavated on Scilly and it is therefore difficult to construct a chronological sequence for these monuments. The only radiocarbon determination is from a small cairn at Porth Killer, St Agnes, which is dated to 2030-1667 cal BC (Wk-5690, 3512 ±70BP) (Ratcliffe *et al* forthcoming). Cairns in Cornwall date primarily to the late third and early second millennium cal BC, confirmed by radiocarbon determinations from several cairns and barrows (Jones 2005; Jones and Quinnell 2011). Rather than their contents, the main contrast between cairns and entrance graves is the lack of access to human remains in cairns after burial.

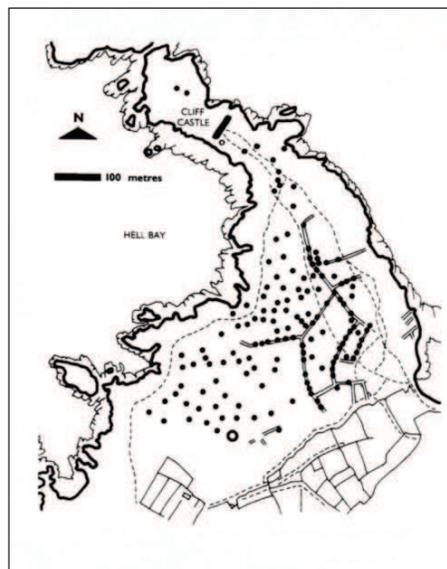


Fig 4.9 Plan of Shipman Head Down, Bryher: the black dots are cairns (© Cornwall Council)

The largest of the cairn-fields is located on Shipman Head Down at the north end of Bryher (Fig 4.9; Breen 2008). It comprises 134 cairns arranged in both clusters and rough alignments which follow slight ridges or contours. This cairn-field is located upon the highest and most exposed part of the headland within a zone enclosed by the 20m contour. The second largest cairn-field is on the highest contours of Castle Down, Tresco, comprising 78 cairns. The cairn-field on Wingletang Down, St Agnes comprises 43 cairns. At the remaining five cairn-fields (Chapel Down, St Martin's; Kittern Hill, and Clapper of Works Down, Gugh; and Peninnis Head Down and Salakee Down, St Mary's), a similar scenario occurs with cairns occupying exposed headlands.

Some of the cairns within cairn-fields have been interpreted as agricultural clearance mounds. This interpretation has arisen through their association with boulder walls that connect cairns such as those found on Shipman Head Down and Kittern Hill (Ratcliffe 1994; Thomas 1985; below, section 5.4.4). The sequential relationship between cairns and walls on the downs is difficult to determine and might only be clarified through excavation.

The interpretation of these walls as evidence for agricultural intensification has been considered problematic because these downs are the most barren and exposed places in the archipelago and are unlikely to ever have been exploited for agriculture, so that perhaps other interpretations for these stone structures should be sought (Lousley 1977; Thomas 1985, 132-3; Breen 2008). At the same time it should be remembered that the climate was more clement in the Bronze Age and that Bodmin Moor and the Penwith Moors, equally inhospitable today, contain considerable evidence of Bronze Age settlement and agriculture (see below, section 5.3.4, for further discussion).

A range of sizes and types of cairn occur on Scilly, all employing similar structural principles. However, due to the lack of excavation within cairn-fields we do not know how this variation relates to the use of these monuments. Most cairns are relatively small with visible diameters falling between 4m and 7m and seldom rising over 0.5m in height. In a small number of instances, however, larger cairns occur, with dimensions of up to 22m in diameter and 2.2m in height. Cairns vary in form, the most basic comprising small piles of loose boulders, whilst kerbs of orthostats surround others. Questions remain as to how many cairns contain burial deposits, but on the basis of excavated examples it would appear that a significant proportion contain stone-lined cists or burial pits (*cf* Thomas 1985, 129-33). In a few instances, such as North Hill, Samson, and Hillbenigates, St Martin's, cists beneath cairns have been identified through excavation (O'Neil *nd e*; Smith 1863), while in other instances the presence of a cist is suggested by depressions within the fabric of the cairn, resulting from antiquarian robbing. A cairn on North Hill, Samson, contained a carefully constructed central cist, held together with mortise and tenon joints, a technique more akin to woodworking than stone working (Smith 1863; Piggott 1941; Ashbee 1974).

Cists are also found on Scilly without covering cairns, as at Old Town (McKenzie 1965), Content Farm (Ashbee 1954) and Town Lane (Crawford 1928), all on St Mary's. The dating of these cists is problematic because of limited and poorly documented excavation and the apparent absence of datable finds, although a radiocarbon determination of 1893 – 1742 cal BC (3492 ±28; OxA-26373) has recently been obtained from cremated human bone from the Old Town cist (Mulville and Sawyer *forthcoming*). By analogy with similar monuments on the Cornish mainland, these monuments should belong to the early second millennium cal (Jones and Quinnell 2011). The classification of flat cists as a separate burial tradition to cairns should be treated with caution as, in a number of instances, archival reports suggest small cairns may once have covered them (Ashbee 1952-53, 30; O'Neil *nd a*).

A recurring feature of cairns is the incorporation of natural earth-fast grounders and outcrops. In a few instances, the grounders incorporated are substantial and would have been clearly visible within the monument after construction. The most striking example of this occurs on Castle Down, Tresco, where a large grounder, known as the 'Borlase Altar', is incorporated within a kerbed cairn (Quinnell 1978). Similarly, a large grounder covered in solution holes on Wingletang Down is encompassed within a kerbed cairn, while at Hillbenigates (also known as Flat Rock Hill) a cairn containing a cist was constructed directly on top of a large grounder, with the burial chamber constructed within a natural hollow in its surface (O'Neil *nd e*). These tor and boulder cairns are also a key feature of the Cornish Bronze Age where they are sometimes associated with multiple urned and unurned cremation burials (Borlase 1879; Tilley and Bennett 2001). On Scilly many entrance graves are also associated with natural rock outcrops (Ashbee 1974, 82-84). In some instances the similarity between these monuments may have resulted in misclassification.

4.7.3 Standing stones and stone rows

The Cornwall and Scilly HER identifies 13 possible standing stones, five of which are upstanding. These standing stones are found throughout the archipelago but little evidence for their date is available. An excavation at the base of a standing stone on Gugh (Fig 4.10) found no evidence of associated features or finds (Borlase 1756, 40). On Mount Flagon, St Mary's (Fig 4.10), and Higher Town, St Martin's, standing stones are found at the centre of small cairns, whilst at Gun Hill and Chapel Down, St Martin's, standing stones are used to form the sides of stone cists. A standing stone on Cruther's Hill, St Martin's, recorded as upstanding by Borlase (1756), lies fallen amongst gorse. Ashbee interprets a large stone incorporated within a house at Halangy Down, St Mary's, as a 'decommissioned' standing stone. The surface of this stone is decorated with a pecked-out geometric design which he suggests represents a stylised face (Ashbee 1966, fig 2; 1974, 153). Borlase recorded a standing stone, the 'High Stone'

on Peninnis Head, St Mary's, and this has been possibly identified as a now recumbent monolith (Seaney 2010b).



Fig 4.10 Standing stones: left Gugh (photo: Ian Dennis) and right Mount Flagon, St Mary's (photo: Cornwall Council)

A possible stone row has been recorded on Par Beach, St Martin's, located midway along the beach between the high and low tide (Fulford *et al* 1997; Ratcliffe 1990, 22, figs 8 and 9), it consists of three granite orthostats set along an east-west alignment and with an overall length of 15m. The location of a stone row on Scilly, within a coastal context, is without precedent and suggests caution. In 1949, O'Neil excavated a prehistoric house on Par Beach in close proximity to the suggested stone row (O'Neil nd a) uncovering two parallel rows of stones running along the beach, between high and low tide which he interpreted as field boundaries. The lower wall consisted of a single row of orthostats between which sections of coursed walling occurred. The location, description (except for the coursed sections), and alignment of this wall match well with that of the suggested stone row and it is possible that the lower wall identified by O'Neil and the recently identified stone row are the same feature. If this interpretation is correct, the higher of O'Neil's wall is now buried beneath sand dunes further up the beach. A photograph taken in 1990, when there was much less sand on Par Beach than today, shows one of the field boundaries and the stone row (Fig 4.11).

Two more stone alignments were identified on Castle Down, Tresco by Dave Hooley during the Monuments Protection Programme (MPP). Stone rows have a wide distribution in Britain, with concentrations in the south west on the uplands of Dartmoor and Bodmin Moor (Barnett 1982; Butler 1997; Johnson and Rose 1994).



Fig 4.11 A field boundary (centre right) and the possible stone row (top left) on Par Beach St Martin's in 1990; only the tips of the stone row are now visible (photo: John Poat)

4.7.4 Pits

The digging of pits and burying of pottery and other artefacts and deposits is a well-attested phenomenon in the British Isles during the later prehistoric period (*cf* Richards and Thomas 1984; Bradley 1990; Bradley 2007; Cole and Jones 2002-3; Jones and Reed 2006; Anderson-Whymark and Thomas 2011) and extensive archaeological evidence has been discovered in Cornwall for the curation and 'structured deposition' of broken potsherds, worked stone and other artefacts (e.g. Gossip and Jones 2007).

It has been suggested that the act of pit digging and deposition may have been intended to render activity memorable and fix a connection between people and place. In Cornwall the shape of pits and repertoire of materials placed in them seems to have changed little from the beginning of the Neolithic period into the Bronze Age, other than the changing ceramic types deposited in them, although it has been argued that the character of such pits generally developed over time, with more care taken over the objects selected and the pits themselves being better crafted (Cole and Jones 2002-3; Jones and Reed 2006).

A growing number of prehistoric pits are being identified in Scilly and their significance is being reassessed (see below, Section 5, for further discussion). Two pits excavated at East Porth, Samson, in 1971 contained the largest assemblage of Neolithic pottery so far found in Scilly, as well as some carefully selected stones and a fragment of pumice (Neal forthcoming a). Neolithic pottery was in the vicinity of a pit exposed in the cliff face at Old Quay, St Martin's (Quinnell 1994), and two nested vessels found in pits in a field near Kallimay Point, St Agnes, in 2007, are tentatively dated to the Early Bronze Age (Johns and Quinnell, forthcoming).

4.8 National and international context

4.8.1 Introduction

The Isles of Scilly have the potential to make a significant contribution to our understanding of the Neolithic and Early Bronze Age more broadly – at both a national and international level – in a number of ways. Equally, as with any region, it is vital that we seek to understand the specifics of the Islands' archaeology in relation to this bigger picture.

4.8.2 The Mesolithic/Neolithic transition

As discussed above (Section 3), the Mesolithic-Neolithic transition in Britain and Ireland is a topic which has witnessed a considerable resurgence of interest in recent years (for example, Thomas 1999; 2008; Pailler and Sheridan 2009, Whittle *et al* 2011). One of the major issues debated is the broader process by which the transition occurred: indigenous adoption, migration/invasion from the European mainland, or a combination of the two (Garrow and Sturt 2011). A secondary, directly related issue, has been the actual route(s) that either native British or migrating northern European mariners (or both) would have taken between mainland Europe and the British Isles and Ireland (Callaghan and Scarre 2009, Sheridan 2010, Whittle *et al* 2011).

The 'western seaways' of Britain have long been considered crucial, geographically, to any understanding of these processes of transition (Callaghan and Scarre 2009; Garrow and Sturt 2011). In recent years further weight has been added to this suggestion, as it has been noted that many of the earliest glimpses of Neolithic practices and material culture occur within and around the western seaways zone: early cow bones have been found in Ireland (Woodman and McCarthy 2003), potentially early pottery in western Scotland (Sheridan 2000), possibly very early cereal pollen in the Isle of Man (Innes *et al* 2003), and a passage tomb of earlier Neolithic date in Devon (Sheridan *et al* 2008).

If we accept that people were indeed journeying between Britain, Ireland and mainland Europe within this zone, the importance of a clear understanding of the late fifth and early fourth millennium cal BC archaeology of Scilly in relation to this question becomes clear. The possibility that the islands may have witnessed very early Neolithic settlement from the Continent or Cornwall as a consequence of this maritime activity is raised. Equally, if the islands did not see such early settlement, that in itself tells us something important about the process of transition: either that early colonists were seeking only large land masses on which to settle, or that they journeyed in short hops along the shore of the mainland rather than carrying out long-distance sea voyages (Garrow and Sturt 2011, 68).

At present, unfortunately, we know very little indeed about the earliest Neolithic sites on the islands (Kirk 2004; Robinson 2007; and see above, Section 4.4.3), and even less about the precise date(s) of any such activity. There is considerable potential for future research in Scilly and Cornwall to assess relationships between the latest Mesolithic assemblages and Early Neolithic flint scatters / pit sites, etc – for example how do they relate to one another spatially? It is also worth noting the possible similarities between locally manufactured Early Neolithic pottery found at various locations in the islands (see above, Section 4.5.1) to that found on mainland Cornwall.

4.8.3 Continuing Neolithic and Early Bronze Age maritime connections

The subject of maritime connections around the western seaways in the later third and second millennium cal BC is a very important one, which is not only of relevance in relation to the Neolithic / Early Bronze Age transition. The Early Bronze Age in particular has long been viewed as a period in which long-distance, trans-European networks of interaction were important: Beaker pottery is found across a wide area of western Europe (for example, Vander Linden 2007), and the raw materials required for bronze moved over long distances (Ottaway and Roberts 2008). Intriguingly, given these pan-European connections and similarities, the evidence from the Isles of Scilly

during this period does not fit particularly well with the broader picture even across the rest of Britain. Beaker, Collared Urn and other Early Bronze Age pottery types current across most of Britain are rare, with even the Trevisker style found across mainland Cornwall being relatively uncommon (Jones and Quinnell 2006; Pollard *et al* 2008, 86). Jones and Quinnell (2006) have suggested that in Cornwall, Beakers were adopted relatively late from further east in England, rather than from the Continent, and were slotted in alongside pre-existing local pottery traditions. It is quite possible that, in the Isles of Scilly, we are seeing a more extreme version of a similar process, with very few Beakers at all ever having been used.

Having noted this pattern, which appears to be reflecting a strong assertion of local regional identity (as seen in the uptake of pottery styles at least), it is interesting to note other patterns which show a somewhat contrasting picture. Jones and Thomas (2010, 291-2), for example, have discussed the possibility that entrance graves, which are abundant in the Isles of Scilly (above, Section 4.7.1), represent one manifestation of a very broad phenomenon whereby closely comparable tomb types also emerged in Ireland, Scotland and perhaps even the Channel Islands at around the same time (c 2100-1700 cal BC). Intriguingly, given the above discussion of pottery styles, Jones and Thomas suggest that these shared tomb styles may actually been a consequence of the same maritime connections which led to the spread of artefacts, including Beakers and lunulae (Jones and Thomas 2010, 292). Recent research into the British Neolithic has tended towards the production of regional studies (for example, Brophy and Barclay 2009; Anderson-Whymark and Thomas 2011), and a consequent understanding of regional variability across Britain. In this context, the Isles of Scilly offer an excellent opportunity to investigate the way in which local identities and broader trans-regional connections were played out materially during the Late Neolithic and Early Bronze Age.

4.8.4 Diet and taskscapes

One issue which has caused considerable debate in recent years is whether or not there was a dietary 'sighting of the sea' at the beginning of the Neolithic. Based on isotopic evidence, it has been argued by some that a (possibly cultural) rejection of fish and other marine resources occurred at that time (Schulting 1998; Richards and Hedges 1999; Thomas 2003). Others have pointed out, however, that the archaeological evidence – particularly in island contexts – supports continued fishing (and thus presumably also the eating of fish) well into the Neolithic (Milner *et al* 2004, 12; Sturt 2005). Clearly, if the Isles of Scilly were being visited periodically, perhaps specifically for the purpose of fishing, then archaeological evidence there has significant potential to contribute to this often heated debate, again adding south-western substance to a picture glimpsed further afield. However, unburnt human skeletal material is rare in Scilly and in the south west in general, and is unlikely to survive from the Neolithic or Early Bronze Age because of the soil acidity, which means that it has not been possible to carry out stable isotope analyses. Future recovery of suitable human bone for isotope analyses is therefore a priority to answer questions of changing dietary preferences.

The character of Neolithic and Early Bronze Age settlement, and of the broader distribution of tasks across the landscape at that time, have also been much-debated in recent years (for example, Gibson 2003; Rowley-Conwy 2003; Garrow 2010). The unusual geographical location of the Isles of Scilly – in terms of Britain as a whole, at least – ensures that the islands' archaeology has a strong contribution to make in relation to these debates. At present, many would agree that, broadly speaking, across much of southern England, people remained fairly mobile throughout the Neolithic and Early Bronze Age, moving intermittently around the landscape rather than settling permanently in one place (for example, Whittle 1997; Brück 1999b; Pollard and Healy (eds) 2008, 80-83). As might be expected, particular places often came to be associated with particular tasks (Edmonds 1997). At present, the current consensus of opinion suggests that the Isles of Scilly were themselves occupied only intermittently before the Early Bronze Age, with perhaps seasonal visits from people who more

usually resided in mainland Cornwall, perhaps in order to collect shellfish and hunt sea mammals or as a landfall during deep-sea fishing trips (cf Robinson 2007, 65). Intriguingly, however, there is evidence for agriculture preceding the construction of entrance graves, which may hint at settlement of a more permanent nature (above, Section 4.4.1). In many ways, therefore, the picture for the Isles of Scilly – of intermittent occupation, and of task-specific associations – matches that for much of southern England rather more closely than might have been expected. Again, further evidence revealing in more detail the character of occupation sites in the islands during this period would help flesh out what is at present a rather patchy picture.

4.8.5 Summary

The key maritime location of the Isles of Scilly in relation to assumed networks of connectivity between the European mainland and Britain and Ireland means that a good understanding of the islands' Neolithic and Early Bronze Age archaeology is crucial to this broader national and international picture. Equally, their offshore location ensures that they have the potential to make a crucial contribution to our appreciation of marine exploitation and taskscapes more generally during this period. The archaeological evidence for wider contacts in Scilly suggests they are both long-term and varied, including occasional imports such as pottery, metalwork, pumice (although this might have floated to the Islands) and faience which reflect a tradition of adopting some things but rejecting others. Entrance graves and cairns also provide evidence for contact and possibly a shared wider identity; the local form of pottery may speak of a more nested identity which developed during the Bronze Age, suggesting that people may have wanted to affirm wider ancestry and connections at some times but a more local identity at others.

4.9 Scientific dating

4.9.1 Radiocarbon dates

The 39 radiocarbon determinations listed below in Figure 4.12 below have all been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period to which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they originally appeared.

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
GU-5061	5210 ±50	4230-3947	Par Beach, St Martin's	Basal 10mm of exposed peat, - 2.02m OD	Ratcliffe & Straker 1996, 19, 127
Wk-19091	4968 ±38	3926-3654	Dolphin Town, Tresco	Potsherd residue, layer 15 in house 13. This is an anomalous date – the potsherd is BA	Taylor & Johns, forthcoming
GU5060	4510 ±60	3486-3017	Par Beach, St Martin's	Basal 50mm of exposed peat, - 0.21m OD	Ratcliffe & Straker 1996, 19, 127
GU-5394	4310 ±60	3263-2703	Porth Mellon, St Mary's	Basal 20mm of exposed peat	Ratcliffe & Straker 1996, 127
SUERC-32991	4310 ±30	3010-2880	Par Beach, St Martin's	Bulk: organic sediment (humic acid fraction), 16-17cm below surface of intertidal peat	Marshall <i>et al</i> 2012
OxA-23825	4377 ±30	3100-2900	Par Beach, St Martin's	Bulk: organic sediment (humin fraction) 5-6cm below surface of intertidal peat	Marshall <i>et al</i> 2012
GU-5393	4280 ±50	3082-2699	Porth Mellon, St Mary's	Sample 1 (top 40mm of exposed peat)	Ratcliffe & Straker 1996, 129
SUERC-32992	4345 ±30	3080-2890	Par Beach, St Martin's	Bulk: organic sediment (humin fraction as SUERC-32991)	Marshall <i>et al</i> 2012

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
OxA-23826	4270 ±29	2920-2870	Par Beach, St Martin's	Bulk: organic sediment (humic acid fraction) 5-6cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-38094	4260 ±35	2920-2870	Porth Mellon, St Mary's	Sediment: humic acid, 1-2cm below surface of intertidal peat	Marshall <i>et al</i> 2012
OxA-23859	4269 ±38	2920-2870	Porth Mellon, St Mary's	Monocot stem, 23cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-38098	4235 ±35	2910-2700	Porth Mellon, St Mary's	Sediment: humin fraction, as SUERC-38094	Marshall <i>et al</i> 2012
SUERC-38090	4160 ±35	2890-2580	Porth Mellon, St Mary's	Sediment: humic acid, 28-29cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-38091	4135 ±35	2880-2570	Porth Mellon, St Mary's	Sediment: humin fraction, as SUERC-38091	Marshall <i>et al</i> 2012
GU-5396	3980 ±100	2866-2204	Porth Mellon, St Mary's	Basal 20mm of exposed peat.	Ratcliffe & Straker 1996, 127, 129
SUERC-38093	4160 ±35	2860-2490	Porth Mellon, St Mary's	Sediment: humin fraction, 0-1cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-32925	3980 ±30	2580-2460	Par Beach, St Martin's	Bulk: organic sediment (humic acid fraction) 2-3cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-32926	3980 ±30	2580-2460	Par Beach, St Martin's	Bulk: organic sediment (humic fraction), as SUERC-32925	Marshall <i>et al</i> 2012
GU-5395	3900 ±70	2572-2151	Porth Mellon, St Mary's	Sample 2 (20-40mm towards top of peat)	Ratcliffe & Straker 1996, 127, 129
GU-5392	3810 ±80	2472-2032	Porth Mellon, St Mary's	Sample 2 (wood towards base of intertidal peat)	Ratcliffe & Straker 1996, 129
SUERC-38092	3795 ±35	2350-2130	Porth Mellon, St Marys	Sediment: humic acid, 0-1cm below surface of intertidal peat	Marshall <i>et al</i> 2012
OxA-X-2465-6	3740 ±30	2270-2030	Par Beach, St Martin's	Domestic cow tooth	Marshall and Bronk Ramsey 2012
HAR-239	3260 ±280	2300-840	Nornour	Charcoal (oak & larch) from lower midden in passage between houses 1 & 3.	Butcher 1978, 29-112
OxA-3649	3620 ±70	2198-1772	East Porth, Samson	Charred seeds (naked barley) from OLS	Ratcliffe & Straker 1996, 62
HAR-4324	3490 ±100	2125-1533	Little Bay, St Martin's	Charcoal (gorse) from heath [60] in House 2.	Neal 1983, 52; <i>Radiocarbon</i> 1985 27 , 83
Wk-5690	3512 ±70	2030-1667	Porth Killier, St Agnes	Basal fill (156) in cist [163] below cairn [154].	Ratcliffe <i>et al</i> forthcoming
OxA-26373	3492 ±28	1893-1742	Old Town Cist, St Mary's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-26372	3386 ±29	1750-1613	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-26364	3365 ±28	1742-1538	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
HAR-1715	3190 ±110	1741-1133	Little Bay, St Martin's	Charcoal from hearth F in House 2	Neal 1983

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
Ox-36363	3319 ± 29	1682-1524	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-3647	3220 ±70	1682-1323	Porth Killier, St Agnes	Charred seeds (<i>Hordeum sp.</i>) from layer 14 at top of midden in house exposed in cliff-section. C14 dates inconsistent with stratigraphy	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1995, 421-2
GU-5413	3250 ±50	1636-1422	Porthcressa, St Mary's	Shell (<i>Patella Vulgata</i>) from midden 3 in house exposed in cliff-face	Ratcliffe & Straker 1996, 77
OxA-26370	3276 ±29	1626-1423	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
HAR-3694	3100 ±100	1608-1056	Higher Moors, St Mary's	?Peat. Of limited value due to high deviation?	Scaife 1984
OxA-3648	3170 ±65	1610-1301	Porth Killier, St Agnes	Charred seeds (<i>Hordeum sp.</i>) from layer 14 at base of midden in house exposed in cliff-section	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1995, 421-2
OxA-26367	3246 ±30	1609-1447	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-4701	3165 ±55	1605-1304	Porthcressa, St Mary's	Charcoal (Rosaceae) from midden in hutcircle exposed in cliff-face	Ratcliffe & Straker 1996, 77; <i>Archaeometry</i> 1995, 421-2
OxA-26368	3215 ±28	1531-1422	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming

Fig 4.12 List of Neolithic and Early Bronze Age radiocarbon dates

4.9.2 OS� dating

Optically Stimulated Luminescence (OSL) dating was applied to sand-sized quartz taken from clean grey sand between intertidal 'peat' units found at Porth Mellon, St Mary's, during the Lyonesse Project (Roberts 2012).

Location	Lab no.	Context	Material	OSL Age
Porth Mellon, St Mary's	161/LPPM1-1	15-17cm below surface of intertidal peat	Quartz	4750 ±1210
Porth Mellon, St Mary's	184/LPPM-2	0.11 ±002m down core	Quartz	4630±250
Porth Mellon, St Mary's	184/LPPM3B	0.03 ±0.01m down core	Quartz	4290 ±250
Porth Mellon, St Mary's	184/LPPM3A	0.17 ±0.02m down core	Quartz	4120 ±250

Fig 4.13 List of Neolithic and Early Bronze Age OS� Ages, expressed as years before AD 2010, rounded to the nearest 10 years

5 Later Bronze Age and Iron Age

Edited by Charles Johns with contributions from Kevin Camidge, Dan Charman, Ralph Fyfe, Andy M Jones, Steve Mills, Jacqui Mulville, Henrietta Quinnell, Paul Rainbird, Helen M Roberts, Gary Robinson, Niall Sharples and Sean R Taylor

5.1 Introduction

The Isles of Scilly contain a large number and diverse range of Later Bronze Age and Iron Age sites and artefacts including settlements and field systems, cliff castles and cemeteries, pottery and metalwork. The Islands hold a wealth of environmental data in the form of buried peat deposits while the enigmatic remains of stone walls and possible hut circles in the subtidal and intertidal zones have been noted since the mid-eighteenth century. The rich archaeological record and the Islands' pivotal position on the Atlantic façade means that there is the potential to pose major research questions relating to Later Bronze Age and Iron Age settlement, Iron Age funerary and ritual practices, the development of British metalwork and the introduction of insular Celtic art, as well as questions relating to patterns of exchange and contact throughout the Late Bronze Age and Iron Age. The main characteristics of Scilly's Later Bronze Age (1500 to 800 BC) and Iron Age (800 BC to AD 43) resource are summarised in this chapter.

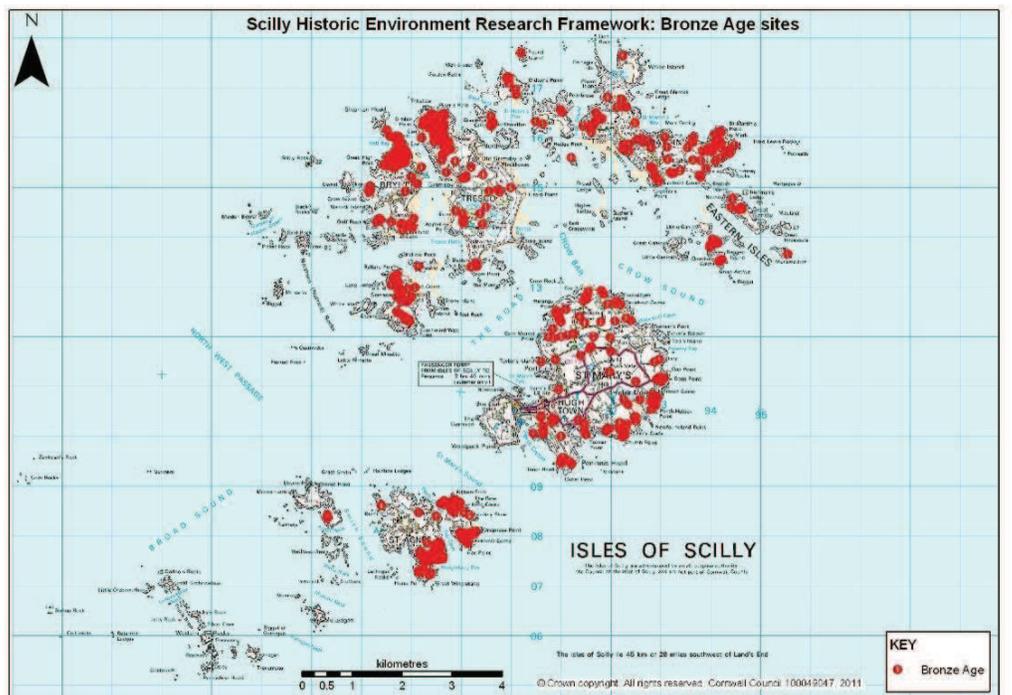


Fig 5.1 Bronze Age sites recorded in the Cornwall and Scilly HER

5.2 Environmental background

The environmental background of Scilly during this period was summarised for the South West Archaeological Research Framework (Straker *et al* 2008, 111).

Pollen analysis and assessment covering the later part of the Bronze Age and the Iron Age has been carried out at various locations in Scilly ranging from the sequences at Higher and Lower Moors on St Mary's (Scaife 1984; with some reinterpretation by Ratcliffe and Straker 1996), the intertidal organic soils on Crab's Ledge, Tresco (Iron Age: Ratcliffe and Straker 1996) and buried soils at Bar Point, St Mary's (Iron Age: Evans 1984), Innisidgen, St Mary's (Dimbleby 1976-7), Halangy Porth, St Mary's

(probably Iron Age: Dimpleby *et al* 1981; Dimpleby in Ashbee 1996, 171–3) and below the rampart of the cliff castle on Shipman Head, Bryher (Ratcliffe and Straker 1996). At Higher and Lower Moors, some regeneration of the birch, oak and hazel woodland is evident in the Middle to Late Bronze Age, with herbaceous and cereal pollen also pointing to some open areas (Straker *et al* 2008, 111).

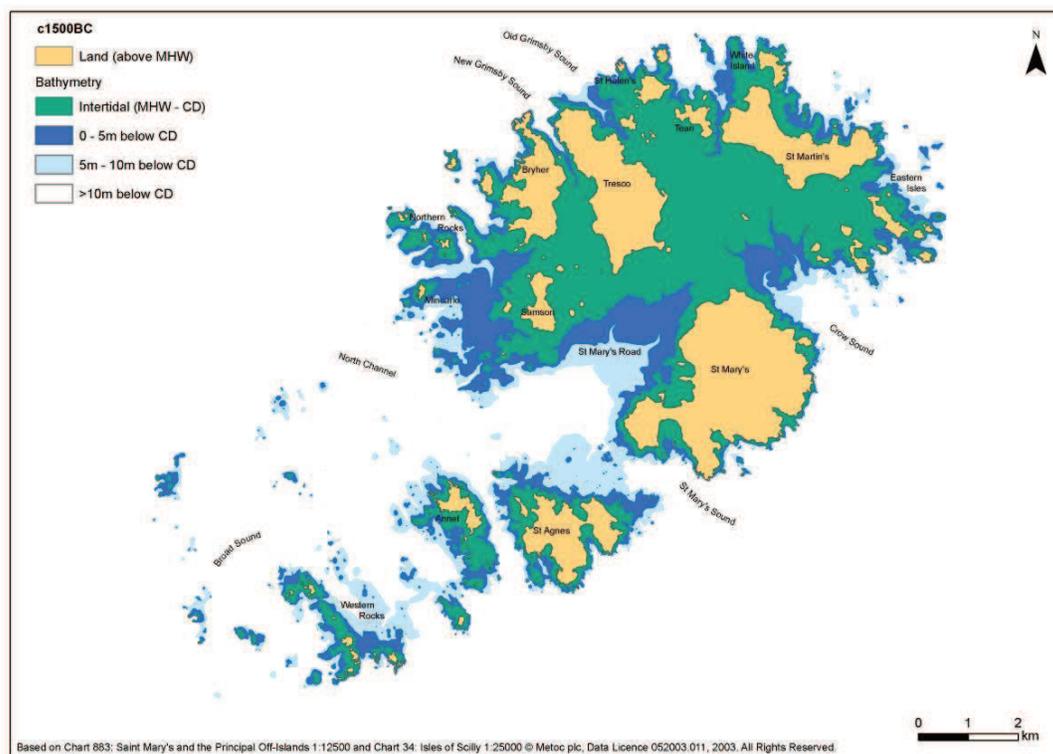


Fig 5.2 Inferred submergence model c 1500 BC, based on data from the Lyonesse Project (Charman *et al* 2012); all details as for Fig 3.3

The start of the main phase of woodland clearance in the Islands is dated at Higher Moors to the Late Bronze Age – Early Iron Age (815-412 cal BC, HAR-3724, 2540±80; 753-234 cal BC, HAR-3723, 2360±60). The soil pollen analyses noted above all testify to open environments, with a little alder, oak, birch and hazel recorded at Bar Point but not at Halangy Porth. The open ground is mainly grazed grassland but at Innisidgen arable was also suggested. Pollen of heathland plants is rare, but the charcoal of heather and gorse/broom at Bonfire Carn and Porth Killier show that it was used as fuel from as early as the Middle Bronze Age (Ratcliffe and Straker 1996). The Crab's Ledge pollen and plant macrofossils are of grasses and members of the Cheopodiaceae family including annual sea blite, suggesting coastal grassland and saltmarsh (Ratcliffe and Straker 1996; Straker *et al* 2008, 111-2).

The Crab's Ledge saltmarsh deposits on Tresco show that saltmarsh was present during the Late Bronze Age and Iron Age, with development beginning from at least as early as c 1000 cal BC and continuing for perhaps another 2000 years. The Crab's Ledge and Bathinghouse Porth deposits probably represent the remaining fragments of a slowly retreating saltmarsh area that previously extended across the whole of St Mary's sound at different times during the late Neolithic through to the first millennium AD (Charman *et al* 2012).

5.3 Middle and Late Bronze Age (1500 – 800 BC)

5.3.1 Chronology

Radiocarbon dates and artefactual assemblages from sites excavated during the last 15 years are beginning to provide an increasingly secure chronology for the Middle and Late Bronze Age in Scilly. Tables of radiocarbon determinations, OSL ages and magnetic dates relating to the period are presented at the end of the chapter (Figs 5.15, 5.16 and 5.17).

5.3.2 Landscape

By the Middle Bronze Age, the configuration of the islands was approaching that of the present day with the most dramatic difference being that there was a vast intertidal area stretching right across St Mary's Roads and covering almost all of the region between the main islands of St Martin's, the Eastern Isles, Treco, Bryher and Samson. It should be stressed that much of this would have only been covered during spring tides, such that it would have remained a useful part of the land, especially for grazing, and would have been passable with ease almost all of the time. It seems very likely that there were extensive saltmarsh areas as part of this intertidal zone, although no deposits from this period were found by the Lyonesse Project (Charman *et al* 2012).

After 1500 BC, the rate of change slowed significantly, and there was a slow loss of both land and intertidal areas throughout the rest of the Bronze Age. The extensive intertidal area between the main islands remained largely intact, although it was being gradually lost due to landward encroachment of the sea up St Mary's Roads from both the west and the east. Again much of this zone may have remained usable for grazing and certainly would have provided no hindrance to passage between the islands at the end of the Bronze Age (*ibid*).

5.3.3 Settlement

Most known settlements are clustered within specific topographical locales along the coastlines of Scilly (Fig 5.1). This distribution might be a result of a lack of coordinated fieldwork within the interior of the islands. An evaluation of geophysical anomalies at Normandy Farm, St Mary's in 2006, for example, revealed evidence of Late Bronze Age settlement activity (Mulville *et al* 2007, 26-35), while excavations in 2009-10 revealed Late Bronze Age settlement remains near Higher Town, 200m inland from the coast on St Agnes (Fig 5.4; Taylor and Johns, in prep).

The identification and interpretation of houses is frequently problematic, especially when they occur within the present day intertidal zone, where movements of sand, gravel and beach boulders obscure them (cf Camidge *et al* 2010). Equally, houses identified in present day cliff-sections are difficult to interpret because of their limited exposure and constant erosion. The character of several present day intertidal and cliff exposed sites has been confirmed through survey and excavation, but the interpretations of others remain questionable (Ashbee 1983; Camidge *et al* 2010; Gray 1972; Ratcliffe and Straker 1996, 87; Thomas 1985).

The stone-built houses of this period are constructed from granite blocks laid in courses or set as orthostats, and are frequently terraced into hill slopes or constructed within natural hollows. Walls are substantial, measuring 1-2.5m thick, double-faced and containing a central core of earth and rubble. At Nornour (Fig 5.3) and Little Bay houses were dug into substantial middens (Butcher 1978; Neal 1983). Postholes are largely absent from house interiors and it is not known how they were roofed. At Nornour, house walls remain standing in places to over 2m in height and appear to be corbelled (Dudley 1967; Butcher 1978). Other houses have substantial internal partition walls that may have supported cross beams, onto which a roof of stone or turf could have been constructed. Although some house roofs may have been corbelled, the majority show no evidence for this and we should presume that this method of roofing, if adopted, was restricted to only a small percentage of houses. A further variation in

roof construction is found at English Island Carn, where O'Neil detected postholes within the earthen wall cores of a house. These post holes sloped inwards towards the house interior at an angle of approximately 45°, suggesting the house had a pitched roof constructed around a central ridgepole (Ashbee 1974; O'Neil 1949a; 1949b; nd h).



Fig 5.3 Sketch reconstruction of the settlement at Nornour (after David Neal)

Single houses are rare and many apparent examples are shown on further investigation to form part of larger house groups. For example, in 1936 Gray (1972, 43) detected the remains of a single house within a *ram* cliff at Porth Killier but when this site was revisited and recorded in 1985 it proved to comprise not one but three houses (Ratcliffe and Straker 1996, 125). Subsequently, geophysical survey has shown that this settlement is more substantial than previously thought, extending inland for a further 20m (Ratcliffe 1989, 10). Similarly at Halangy Porth a single house exposed in the cliff-section is now shown to be at least two houses (Ashbee 1983; Ratcliffe and Straker 1996). At Little Bay, what O'Neil identified as a single house was shown on subsequent excavation to be a group of at least four houses (Neal 1983). Similar scenarios are also recorded at other sites on the Islands such as English Island Carn, Halangy Down and Nornour, where in each instance what was initially interpreted as single houses have consequently been shown to comprise more substantial settlements (Ashbee 1999; Butcher 1978; Neal 1983; Ratcliffe 1991).

Settlements tend to be reused over long periods, with houses occupied, abandoned, modified and reoccupied within relatively short periods. The excavation of a settlement of four houses at Little Bay suggests that, here, houses were not occupied simultaneously but constructed, modified, abandoned and rebuilt (Neal 1983, 58). For example, radiocarbon dates from a sequence of internal hearths in house B at Little Bay demonstrates occupation between 2125-1533 cal BC (HAR-4324; 3490 ±100 BP) and 1191-799 cal BC (HAR-1726; 2780 ±80 BP) separated by episodes of abandonment and modification, evidenced by infilling layers consisted of soil, rubble, midden and broken artefacts (Neal 1983, 52-56). At Dial Rocks, Little Arthur, May's Hill and Porth Killier, a similar scenario of house abandonment and reoccupation is suggested from the chronologically mixed assemblages recovered (O'Neil nd d; nd f; Ratcliffe 1991; Ratcliffe and Straker 1996). For example, artefacts recovered from houses at Dial Rocks contain artefacts dating from the second millennium BC to the first century AD, whilst at Little Arthur a mixed assemblage of first and second millennium BC pottery is

associated with a house that was constantly modified and rebuilt (O'Neil nd f; Ratcliffe and Thorpe 1991).



Fig 5:4 Excavation of a Late Bronze house at Higher Town, St Agnes, in 2009 (photo: Cornwall Council)

Recent archaeological research on mainland Bronze Age settlement sites has shown that the structured deposition of objects played an important part in house abandonment (Brück 1996; 1999b), and in Cornwall the abandonment of lowland Bronze Age settlements resulted in houses being intentionally filled with soil and rubble to look like burial cairns (e.g. Nowakowski 1991; 1999; 2001). Structured deposition and 'middening' (the ritualistic re-working and re-deposition of midden deposits) have scarcely been considered in regard to prehistoric settlement in Scilly and would be rewarding subjects for future work. At Higher Town, St Agnes, for example, a roundhouse was filled with granite rubble containing a large amount of Middle to Late Bronze Age / Early Iron Age pottery, flint and stone artefacts, possibly with the intention of making it into a cairn (Fig 5.4; Taylor and Johns, in prep).

Pottery vessels have been found in clay-lined pits, which are often associated with settlements. A layer of occupation soil at Bar Point, St Mary's, for example, contained several small pits, one of them filled by a complete pot standing upright (rim missing), while several of the others contained sherds (Butcher and Johns, forthcoming). At Pendrathen, also on St Mary's, the lower part of a flat-based coarse vessel was found in a clay-lined pit dug into the *ram* (Samuels 1975, 117), while a similar vessel was found in a clay-lined pit at Halangy Porth, St Mary's, in 1936, containing about a dozen sherds from two or three different pots, along with some calcined bone and charcoal (Gray 1972, 34-5). It is sometimes difficult to distinguish ritual pits from domestic ones (Jones and Reed 2006, 20-1), but these Scillonian pits seem to be domestic with a possible storage function, the clay pit-lining making them watertight.

At Higher Town, St Agnes, a freestanding loess-encrusted vessel was found in a stone-lined chamber within a structure. It is possible that this pot represents a halfway stage in which the pot was coated in loess before being placed into a clay-lined pit. On the

same site were 12 shallow pits apparently dating to the Middle or Late Bronze Age, which may have been dug to extract the soft natural clay in this area, either for the manufacture of pottery or to coat the outside of the pots (Taylor and Johns, in prep).

5.3.4 Field systems

In the 1970s Fowler and Thomas recorded field systems on Halangy Down and Bar Point, St Mary's, on Chapel Down, Porth Morran, and Burnt Hill, St Martin's, at Gimble Porth, Tresco, on the islands of Tean and Gugh (Fig 5.5) and, in particular, on North and South Hill, Samson, which they considered to be 'one of the most significant areas of archaeological importance anywhere in the British Isles' (1979, 178). They also noted field enclosures at Shipman Head Down and Heathy Hill on Bryher, and on St Agnes, St Helen's, Northwethel and Arthur in the Eastern Isles (*ibid*).

The walls are of several different constructive techniques: single lines of orthostats, sometimes with the gaps filled by rubble; double-faced walls, often incorporating boulder-sized grounders, with rubble infill; stone banks which in some places have become lynchets (e.g. Heathy Hill, Bryher, and North Hill, Samson). In some places apparent lynchets could represent deliberate revetments for terracing as at Halangy Down (Fowler and Thomas 1979, 185-6).

Fowler and Thomas described the fields as

'Small, adjacent, rectangular enclosures, fairly definitely used as arable plots and for grazing... on South Hill, Samson and Halangy Down, St Mary's, we are looking at the remains of prehistoric arable field systems. On the latter site, an 'early' phase of fields, each c 50m by c 25m, can be discerned, and similar oblong fields probably exist among the much more complex pattern on South Hill...At Porth Morran, White Island, the widths of fields are either c 50m or c 25m, and the lengths at least 200m but there is no obvious evidence of cultivation here, and an 'arable field-system' interpretation is not necessarily correct. The same reservation must apply, for example to the yet unsurveyed complex on Chapel Down, St Martin's. Nevertheless oblong, small, squarish and long strip-like can tentatively be distinguished as three potential types' (Fowler and Thomas 1979, 186).

There are also enclosures of other shapes bounded by walls, such as two roughly oblong enclosures on North Hill, Samson, which are separate from each other and now part of a later field system, and irregular enclosures on Green Bay, Bryher. As well as enclosing, walls also link cairns, which may be funerary monuments or agricultural clearance cairns, as on Shipman Head Down, Bryher, and the northern end of South Hill, Samson (*ibid*).

Seventy-one extant field systems are recorded in the Cornwall and Scilly HER. With the exception of the Iron Age example at Bar Point, St Mary's (below, Section 5.4.4), none of the prehistoric walls on Scilly have been conclusively dated. As discussed above in Section 4.4.1, six Early Bronze Age entrance graves appear to post-date lynchets and many of the walls are thought to date from the Bronze Age.

As discussed above in Section 4.7.2, some of the cairns within cairn-fields have been interpreted as agricultural clearance mounds, an interpretation which has arisen through their association with connecting boulder walls as on Shipman Head Down and Kittern Hill. It has been pointed out that these downs are the most barren and exposed places in the archipelago and are unlikely to ever have been exploited for agriculture so that other interpretations for these stone walls should be sought (Lousley 1977; Thomas 1985, 132-3; Breen 2008). However, it should be noted that the Bronze Age climate was a more favourable one, and that Bodmin Moor and the Penwith Moors with their numerous Bronze Age settlements and field systems seem equally inhospitable today.

Stone walls in the intertidal zone on Samson Flats were first recorded by William Borlase in 1756 and led O G S Crawford to suggest that Scilly was 'the lost land of Lyonesse' (Crawford 1927), although he later considered in an editorial for *Antiquity* that these features might instead be the remains of medieval fish traps (Crawford 1946). Other walls include those on Tresco Flats, Town Beach and Green Bay, Bryher; Appletree Bay, Bathinghouse Porth and Crab's Ledge, Tresco; Bar Point, St Mary's, Par Beach and Porth Morran, St Martin's, and West Porth, Tean.

A detailed survey and interpretation of the intertidal stone walls on Samson Flats was carried out by the Cornwall and Isles of Scilly Maritime Archaeology Society (CISMAS) in 2009/10 (Fig 5.6; Camidge *et al* 2010). The extent and complexity of the exposed remains proved to be greater than was envisaged at the outset of the survey. There were at least two different types which may be of different date and function.

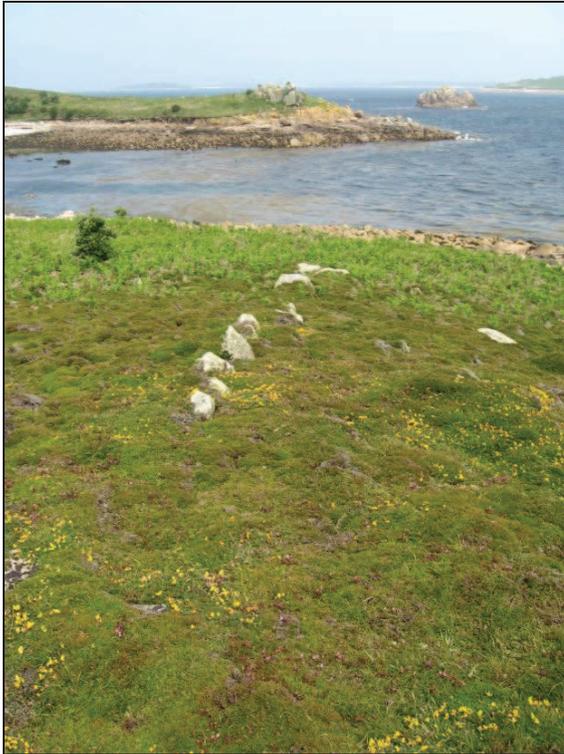


Fig 5.5 Field boundary on Gugh
(photo: Richard O'Neill)

One type was 'boulder walls' comprising medium to large stones set on edge, often just a single line of stones with smaller stones filling the gaps. The other type was 'stone-faced stone walls', courses of flattish stones with larger, more regular stones defining the edges, and irregular rubble forming the core of the wall.

The survey established that the linear stone features could have functioned as fish traps, but it cannot prove that they were actually used as such. One tentative suggestion is that some walls were constructed as prehistoric field boundaries which were then inundated by rising sea levels and subsequently reused as part of a tidal fish trap by the addition of additional walls, possibly in the post-medieval period (Camidge *et al* 2010, 67).

We do not have any direct dating evidence for these intertidal field systems but according to the new sea-level maps their locations correspond to areas which were dry land in the Early Bronze Age, c 2500 to 2000 cal BC, but which had become intertidal by the beginning of the Middle Bronze Age c 1500 cal BC. If they served the purpose of stopping animals straying into more dangerous areas of low marsh these intertidal areas could well have been used for grazing, so the walls could still date to the Late Bronze Age or Iron Age. However, if their purpose was to enclose arable fields they must date to the Early Bronze Age.



Fig 5.6 The intertidal stone walls on Samson Flats can be seen top centre of this aerial photograph, the curving arc to the left is seaweed caught on the contour line (photo: Cornwall Council)

5.3.5 The material world

Metalwork

Bronze was not used for everyday tools in Cornwall until c 1400 BC. In Scilly, where lack of raw materials would have restricted local metal production, traditional tools of stone and bone would probably have stayed in use longer and always have been more common. Only eight Later Bronze Age metal objects have been recorded from the Islands, four of these from settlements: a bronze awl from May's Hill, St Martin's, and three unidentifiable objects from Nornour. The remaining bronzes, a socketed axe from St Mary's, two heavy torcs and a rapier blade fragment from the beach at Nornour, are either unprovenanced or from burials (Ratcliffe and Johns 2003, 9).

An Irish gold bracelet found on the foreshore on the south-west side of St Martin's in 1990 probably originated from a hoard. Its distinctive expanded terminals indicate that it is a Covesea variant dating to c 900 BC; such bracelets have a specific Atlantic distribution (Ratcliffe and Johns 2003, 9; Robinson 2007, 68).

Ceramics

Middle Bronze Age

Scillonian Bronze Age ceramics continued to be used in Middle Bronze Age settlements with stone houses. All the sites investigated and published are situated on the modern cliff edge and excavation has tended to be restricted to narrow strips. Settlements generally appear to have included midden deposits with pottery. The practice of depositing broken ceramics near houses ensures that sites generally produce substantial quantities of pottery but also makes redeposition likely when structures were rebuilt. Consequently it is difficult to determine in many cases how far a context contains ceramics of a single period.

The sites excavated and published are Nornour (Dudley 1968; Butcher 1978), Little Bay, St Martin's (Neal 1983), Halangy Porth (Ashbee 1983) and Dolphin Town, Tresco (Quinnell, 2009-10). Sites for which pottery reports have been prepared but which await full publication are Porthcressa, St Mary's (Quinnell 1994), Porth Killier, St Agnes (Quinnell, in prep a), and Higher Town, St Agnes (Quinnell, in prep f); some stratigraphic and dating data for Porthcressa and Porth Killier has been published by Ratcliffe and Straker (1996). These sites have all, except Halangy Porth, produced at least one radiocarbon determination relating to the Middle Bronze Age, c 1600 -1100 BC.

Unpublished excavations by O'Neil took place on St Martin's at English Island Carn, Great Bay, May's Hill and Par Beach; details of archive reports are given by Robinson (2007, Bibliography). Ceramics from at least four sites not previously known were found in the archaeological work accompanying the excavation of electricity cable trenches in 1984-5 (Quinnell 1991). Details of a further four sites known from retrieval of finds in varying circumstances are listed by Robinson (2007, Appendix M). All these sites appear to have Scillonian Bronze Age ceramics.

The assemblage from Nornour is by far the largest, with the material from Butcher's excavations totalling 4522 sherds (Robinson 2007, 60). However this covers a period from the Early Bronze Age until the Iron Age. This is the only assemblage to be published by type, context and site period, with the data presented in a visually clearer fashion by Robinson (2007, Appendix K).

Fabrics are almost universally granitic, in varying degrees of fineness. Thin-section petrography was carried out for Nornour by D F Williams (in Butcher 1968), with the granitic fabrics demonstrated to include small fragments of granite. Williams (in Neal 1983) also examined the fabrics from Little Bay, apparently without thin-sections, and described these as similar to those from Nornour. R Taylor (in Quinnell 2009-10) included some thin-sections in his examination of the Dolphin Town pottery and again noted granite inclusions which he considered to have been crushed and added to a granitic clay. No petrographic work has taken place on the other sites considered.

It is difficult to provide a comprehensive and comprehensible account of vessel typology and decoration. Halangy Porth, where Ashbee (1983) combined a report on his work with an account of the very large quantities of sherds excavated by Alec Gray in the 1920s and 1930s, appears to have had a large midden in which there were numerous vessels with cord or comb impressed decoration, as well as large plain vessels. There is no radiocarbon dating for the Bronze Age but it is quite possible that most of the ceramic material here is Early Bronze Age in date. At all the other sites vessels with cord and comb impressions are infrequent. At Little Bay (Neal 1983, 62) decorated sherds came from lower stratigraphic levels in buildings. At Nornour decorated sherds are infrequent and at Porthcressa (Quinnell 1994) and Dolphin Town (Quinnell 2009-10) are represented only by single pieces. At Porth Killier (Quinnell, in prep a) a midden preceding the excavated hut circle contained several vessels with grooved or incised decoration and had radiocarbon dates of 1610-1310 cal BC (OxA-3648) and 1680-1320 cal BC (OxA-3647). Otherwise on all sites except Halangy Porth plain vessels predominate. These are principally of Nornour Types 1 to 7, simple jars with slight necks and everted rims, vessels with straight sides or slightly closed forms. It appears on current evidence that for much of the Middle Bronze Age, plain wares of simple form made up most of the ceramics on domestic sites. Decorated vessels either belonged to the early part of this period or were made infrequently, perhaps for some special use.

Imported gabbroic Trevisker sherds are now recognised in the assemblage from Higher Town, St Agnes (Quinnell, in prep e).

Late Bronze Age and Early Iron Age

In mainland Cornwall two sites, Higher Besore (Quinnell in Gossip, forthcoming a) and Scarcewater (Quinnell 2010), have recently produced Late Bronze Age Plain Ware (LBAPW) assemblages with radiocarbon and artefact dating relating to the eleventh to

ninth centuries BC. The most common forms are straight-sided jars and small shouldered jars. Bowls with carinated shoulders which occur in LBAPW elsewhere are not present. The earliest mainland context with a carinated bowl is radiocarbon dated to the eighth century BC at Trevelgue cliff castle (Nowakowski and Quinnell 2011, 7.7); this context also includes large shouldered jars. Both these types occur at Bodrifty (Dudley 1956). This data suggests for the mainland a LBAPW phase followed by an Early Iron Age phase with carinated bowls and large shouldered jars.

A structure at Bonfire Carn, Bryher, with indeterminate ceramics has two radiocarbon determinations relating to the eleventh to ninth centuries BC (Quinnell 1994; Ratcliffe and Straker 1996). Little Bay has a late phase with a radiocarbon date of the twelfth to ninth centuries, the ceramics an apparent continuation of the plain forms of the MBA, but some of the large straight-sided vessels might relate to LBAPW. Porth Killier (Quinnell, in prep a) in Sector B has a group of pits which provide closed deposits, unusual on Scilly. One of the pits had two radiocarbon determinations covering the eleventh to seventh centuries. The small assemblage comprises simple, slightly necked vessels, continuing forms present in the MBA. Dolphin Town (Quinnell 2009-10) has parts of two small carinated bowls in the upper part of the spread which yielded MBA radiocarbon determinations. Nornour has both small shouldered jars and carinated bowls, some of them in broad association with a radiocarbon determination covering the tenth to seventh centuries (Butcher 1978; Robinson 2007, 62). West Porth, Samson (Quinnell 1994; Ratcliffe and Straker 1996), has both shouldered jars and carinated bowls in an apparently single phase site with two C14 determinations covering the eighth to fifth centuries BC. Finally, LBAPW has been identified at Higher Town, St Agnes (Quinnell, in prep f). The data from these seven sites may represent successive Late Bronze Age and Early Iron Age ceramic phases but these are not currently very clearly defined. They would support the introduction of carinated bowls in the eighth century, the earliest century of the Iron Age as chronology for Britain is currently understood. Both the data from Scilly and the mainland currently suggest that carinated bowls were introduced here later than further east in Britain.

A number of domestic sites excavated by O'Neil are recorded by Robinson (2007, Appendix M) as having first millennium BC ceramics. Until this material has been examined by a modern ceramic expert no comment can be made as there is a long history of this material being misinterpreted.

No petrography was carried out for Bonfire Carn or West Porth. Porth Killier (Sector B) has a gabbroic bowl from a sealed pit. All other fabrics appear to be similar to the local granitic material of the Middle Bronze Age.

On the mainland a Plain Jar Group (PJG) with small and medium necked jars without decoration has recently been identified as the ceramic of the later Early Iron Age, covering the sixth to fourth centuries BC (Nowakowski and Quinnell 2011, 7.8; Quinnell 2011). Nothing comparable has been so far been identified on Scilly and ceramics for these centuries are currently unrecognised. The one exception is Halangy Porth (Ashbee 1983; Ratcliffe and Straker 1996). Re-examination of collections from sites with assemblages dating to the centuries either side of this period, especially the west area of Nornour excavated by Dudley (1968), might well show that it was present.

Stone

Stone artefacts from Scillonian settlements of this period are especially common (e.g. Butcher 1978, 95) but have received little detailed study. Artefact groups include bowl and saddle querns, bowls, troughs, whetstones, holed weights, bruising mullers, rubbing stones, pebble hammers, hammer stones and pivot stones.

Current knowledge has been summarised by Quinnell (in prep d). Because of the frequency of finds of pebbles, it is not easy to distinguish those which show signs of use or working and until the last few decades all but the most obvious artefacts were probably not recognised. Only the reports on Nornour (Butcher 1978), Little Bay (Neal 1983), Halangy Porth (Ashbee 1983), and Halangy Down (Ashbee 1996) have sufficient

detail for comparative discussion. Stone artefacts from the Isles of Scilly Electrification Project were all without contexts and have been briefly summarised (Ratcliffe 1991, 67-71); the small number of artefacts from the 1989-1993 Coastal Erosion Project has not so far been discussed as a group (Quinnell 1994).

Large quantities of stone artefacts were identified at Dolphin Town, Tresco (Taylor and Johns 2009-10), and Higher Town, St Agnes (Taylor and Johns, in prep). At present the consensual policy is for large stone artefacts such as quern stones to remain on the island where they were found. However, this can make analysis difficult and the question of the long-term storage and curation of such items needs to be reconsidered.

Pivot stones are fairly frequent finds on Scilly (e.g. Ratcliffe 1991, 67-8) and occurred at Little Bay (Neal 1983, 59), a site with a long occupation within the Bronze Age but with no subsequent use. While pivot stones are not uncommon, there appears to be no clear published account of how they actually functioned. The subject is one which would benefit from a more detailed examination of surviving pivot stones and from experimental work (Quinnell, in prep d).

Flint

The flintworking traditions of the full second millennium BC are cruder than those of the Mesolithic and Neolithic, although they are parts of the same long continuum. The scarcity of flint from Porth Killier, St Agnes, and the Early Iron Age site at West Porth, Samson, may suggest that during this period flint was no longer of such importance as in earlier prehistory (Quinnell, in prep e).

5.3.6 Subsistence

Occupation debris from settlements reveals that their inhabitants practised a mixed subsistence economy; as well as growing crops and raising stock, they fished, gathered shellfish and hunted wild animals and birds. Cereals such as naked barley and emmer wheat were cultivated, with pulses such as the Celtic, horse and horn bean (Ratcliffe and Johns 2003).

Plant remains

At Porth Killier, St Agnes, and Porthcressa, St Mary's, crops represented include emmer wheat and Celtic bean as well as naked and hulled barley; also two grains of oats, which could have been crop or weed. Many weeds were present: vetches, knotgrass, black bindweed, chickweed, small nettle and red goosefoot. The presence of ploughman's spikenard (*Inula conyza*) indicates that more calcareous soils had developed, perhaps in areas where shelly sand had accumulated; also the finding of corn spurrey (*Spergula arvensis*) at West Porth, Samson, indicates that some acidic soils had developed on granite, unless the presence of sand with shells had altered the balance. Clover (*Trifolium* sp.) and grasses point to open grassy areas or perhaps sand dunes in the vicinity. The presence of stinging nettles could indicate nutrient (phosphate) –rich conditions such as dung and domestic waste around settlements. The few seeds of sedge and rushes suggest collection of plants from damp conditions, perhaps for flooring or roofing materials. There is also evidence that a heathland flora had already developed over the granite by the Bronze Age. At Bonfire Carn, Bryher, this was well developed with gorse present as well as heath grass and ling. Charcoal was of gorse, broom, heather or ling and rose and bramble, all scrub or heath rather than woodland plants. At Porth Killier and West Porth, Samson as well as charred seeds there were others, dock and stinging nettle, that had been preserved by mineralisation probably caused by dumping of large numbers of limpet shells or perhaps phosphate-rich animal dung (Ratcliffe and Straker 1996, 11).

It is interesting to note that Bronze Age saddle querns and grinding mullers on Scilly are very large. These would have required considerable preparation and involved much effort to use. The heavy mullers from the Late Bronze Age settlement at Higher Town, would only grind with considerable pressure applied to their 8-10kg weight (Quinnell, in

prep g). The size of the equipment, both the mullers and the querns, suggests that considerable importance was attached to the preparation of grain, as does the deliberate decommissioning and deposition of these items. The importance of grain and its preparation could have been related to difficulties of production in Scillonian conditions and moreover to the rapidly diminishing area of good agricultural land available. In prehistoric Scilly grain might have been a rare and symbolically high status food source, as opposed to everyday fish and limpets.

Osteological faunal remains

Introduction

With the exception of the Par Beach calf's tooth (above, Section 4.5.4), the earliest records for the Islands date to the Middle Bronze Age. There are reports on material from Nornour (Turk 1967; 1968; 1971; 1973; 1978), Halangy Down, St Mary's (Locker 1996), Halangy Porth, St Mary's (Gray 1983), Little Bay, St Martin's (Locker 1983), Porth Killier, St Agnes (Turk 1991; Locker, forthcoming); Dolphin Town, Tresco (Ingrem 2009-10), and Higher Town, St Agnes (Ingrem, in prep).

Quality of the resource

Scillonian faunal remains were last summarised in Ratcliffe and Straker (1996). Since this authoritative work only a few new assemblages have come to light. There are few substantial and fully recorded assemblages and the faunal resource is generally small, often unquantified, and poorly dated. The largest quantified assemblages are derived from the Romano-British settlement on Halangy Down (Locker 1999; Number of Identified Specimens (NISP) 1651, excluding unidentified fragments) and East Porth (Locker 1983, Ratcliffe and Straker 1996; NISP 1242).

The assemblage from Nornour (Turk 1967; 1968; 1971; 1973; 1978) is also substantial but no NISP was published. The larger assemblages produced a quantity of metrical data, however aging information remains scant. Data relating to butchery, taphonomy, animal health, etc, has also been reported anecdotally by Turk and more systematically by Locker but overall the quality of the excavated resource remains poor. Sieving has been used in recent excavations but was not systematically applied in the past; as a result small bones and in particular smaller species (small mammals, fish and birds) are likely to be underrepresented. Whilst species lists for birds and fish are available and comprehensive, the relative contribution of these resources is extremely difficult to assess. The earliest remains of a domesticated cat in Britain were identified at Gussage All Saints and the individual on Nornour is the size of a larger domestic cat (O'Connor 2010).

Assemblage quantification

The assemblages all demonstrate a broad level of faunal exploitation, with birds, fish and marine and terrestrial mammals exploited. Only the Romano-British settlement on Halangy Down meets the criteria for detailed analysis of the relative abundance of main food animals (i.e. 300 NISP; Hambleton 1999) and the complexities of recording and quantifying the more diverse assemblages of bird and fish bone preclude all but the most general statements on the economic role of animals. At Nornour Turk indicated that while sheep were the most abundant species, seal were more common than cattle; however, this data remains unqualified. Whilst detailed information on introductions, extinctions and management is difficult to define given lack of precision, the following section draws on all available information to write a narrative on faunal history.

Faunal history

Terrestrial species include both domesticated and wild stock, with cattle, sheep, pig and red deer the most common species. There is evidence for the exploitation of marine resources with seal, cetacean and fish remains identified. The emphasis on terrestrial resources, with a minor but persistent component of marine resources, is common to many coastal and insular sites in later prehistory. Attempts to identify the contribution

of marine foods to the insular post-Mesolithic diet suggest that these make up less than 20% of the total protein input; however, marine animals may have been an important source of other foods such as fats and oils. At Nornour, Turk (1978) linked the high proportion of seal bones, in particular their burning, to a reliance on seal blubber. Seals, mostly grey seals, were probably hunted during the autumn, when they come ashore to breed, whilst the sparse evidence for cetaceans, mostly smaller dolphins, suggests the occasional use of stranded animals, although they could have been actively hunted. In the past, as today, the use of boats to move between the islands would have been necessary and seafaring a way of life, providing plenty of opportunity for fishing, birding and the procurement of marine mammals.

In addition to the main food animals, a few other terrestrial species are present on the islands by this time. There are a few canid remains (Locker refers to fox-size animals) and deer bones but these are insufficiently characterised to argue for local breeding populations. Turk remained convinced of the presence of an early local deer population in the Bronze Age and identified some smaller red deer (Turk 1978, 100) as providing evidence of an indigenous population of great antiquity and possible evidence for the presence of roe deer (Turk 1971, 94). There is strong evidence for the translocation of deer to the Scottish islands from the Neolithic onwards (Mulville 2010) although they do not arrive in Ireland until the Bronze Age. The recent evidence for the introduction of fox to the Orkney Isles (Fairnell and Barrett 2007) may provide a clue as to what these small canids represent.

There are a few horse elements from Porth Killier (Turk 1991) and Nornour (Turk 1978). The presence of horse in the Bronze Age is of interest; this species is rarely found on British Bronze Age sites and this material would benefit from revisiting and dating. In general, the low diversity of terrestrial species reflects both the size of the landmass and the small size or of the recovered assemblages; for example, prior to the major excavations on the Uists, red deer populations were thought to have never existed and many rarer species (e.g. roe deer, badger, pine martin etc) were unrecorded.

The first substantial evidence for Scillonian faunal exploitation in the abundant Later Bronze Age assemblages fits into the general British pattern of insular exploitation, with a range of species present. Wild food procurement would have involved hunting, trapping and fishing to procure marine mammals, fish and birds, the collection of littoral resources (crustacea, mollusca, etc) and bird eggs. Hunting would have extended to any endemic herds of deer, although careful management would have been required to maintain herds on these small islands, despite any larger mass resulting from lower sea levels. The evidence for domestic stock management is somewhat sparse. Aging evidence is restricted to Halangy and Nornour, and with only older cattle and younger lambs noted, the assemblages remain too small to allow detailed reconstructions of any changes over time. The Scottish islands provide significant evidence for a high level of cattle neonatal mortality. This has been variously interpreted as a specialist dairy economy or as problems with stock rearing associated with the marginal climate. As such, detailed analysis of the Scillonian assemblages with their milder climate and much longer growing season would be of significant research potential to examine the effect of the environment on husbandry decisions in prehistory. Additionally, recent insular research has focused on mapping ecosystem dynamics, understanding food and foddering of livestock and understanding the impact of small island environments on animal size and genetic diversity. For all these questions the Isles of Scilly fauna have a pivotal role to play, and the analysis of faunal assemblages, human and faunal stable isotopes and pottery residues from the island assemblages forms part of the NERC Diversification and Sustainability in Ancient Coastal Communities: The Role of Marine Resources (DISARMR) research project (Evershed and Mulville).

The only indicators of Scillonian stock characteristics derive from the metrical data; both Turk and Locker identify stock that is smaller than contemporary mainland animals

(Locker 1983, 19). Locker found the sheep to be a similar size to the Shetland breed and Turk described the cattle as small and the pig as long-legged. This and the sparse data for other species - cat, dog and deer - require more research and need to be compared with the contemporary substantial metrical datasets now available (e.g. at the ADS).

The role of animals in prehistory is often expressed in their non-economic contexts. On Scottish islands articulated groups, heads or repeating elements are found deposited within tombs, houses, ditches and pits, and reflect mainland practise. The Isles of Scilly are unusual in that no articulated groups of animals have been recovered (apart from the single third century AD cat at Halangy Down). This may reflect the timing and nature of the excavations; for example, late Bronze and Iron Age material in the Hebrides is typified by under floor deposits and few Scillonian houses have been fully or recently excavated.

Shell

Limpet shells, often in large quantities, are found on most settlement sites in Scilly, from the prehistoric to the post-medieval period (Ratcliffe and Straker, 1996). There are two published studies of limpet shells, which usually make up the bulk of any domestic midden – Halangy Down, St Mary’s (Townsend 1967), and Samson (Mason 1984) – and two unpublished studies, Porth Killier, St Agnes (Light, forthcoming), and Higher Town, St Agnes (Law, in prep).

Evidence from Porth Killier suggests that heavy exploitation of marine resources took place in the Bronze Age. The majority of shells had the morphology associated with middle to lower shore habitats where limpets are more abundant, as well as being apparently tastier than upper shore specimens. It has been estimated that 400 limpets would be need to provide one person with enough kilocalories for one day and that 31,360 limpets would be needed to provide the calorific equivalent of one red deer carcase (Bailey 1978). Even for an extensive Danish shell midden of 2000m³, containing tens of millions of shells, it was shown that based on length of accumulation time and base area of the mound, which gives an estimated population size (Cook and Treganza 1950), for a community of 39 people, the shellfood contribution to the diet would be 1.8%, and for 25 people 2.7%. This suggests that in general shellfish were treated as a small but constant and reliable source of fresh protein to supplement diets (*cf* Light, forthcoming).

It has been suggested that limpets were used as fishing bait rather than food (Ashbee 1974; Turk 1984), but if this were the case why were limpets transported from the shore to inland locations and even the tops of hills? Although limpets have been valued in the past for bait, other options are considered more effective: mussels, marine worms and shore crabs; with the exception of mussels, these resources and more would have been available to early Scillonians (*cf* Light, forthcoming).

Authors writing on the archaeology of Scilly mention the vast numbers of limpets, estimated as 110,000 in one midden (Ashbee 1974). Excavation has revealed quantities of rotted shells which suggest that limpet shells may have been used for soil enrichment. In view of the large numbers present at Porth Killier and at other sites in Scilly (e.g. Mason and Hayton 1977) it seems likely that limpets at least occasionally formed part of the diet. The value of a foodstuff such as limpets lies in the reliability of the resource and ease of exploitation when more desirable sources of protein might be in short supply (*cf* Light, forthcoming).

5.3.7 Transport

There is no archaeological evidence of boats of any type from this period in Scilly; indeed there is virtually no primary evidence of sea-going craft from Britain. However, a relatively large number of craft (log and plank boats) have been found in rivers, lakes and estuaries in Britain (Ransley *et al* 2011). Collections of Bronze Age artefacts found in the sea at Salcombe and Dover may be indicative of Bronze Age shipwrecks.

A rim sherd of coarse Bronze Age pottery with a collection of incised lines on its outer face was found during excavations at Higher Town, St Agnes in 2009. These lines were drawn prior to the firing of the pot and have been interpreted by some as depicting a boat or ship with a sail, although the nature of the incised lines (Fig 5.7) is such that other interpretations are possible. If this is a Bronze Age depiction of a boat with a sail it is of international importance as there is no evidence of Bronze Age sails from Europe (Thomas 2010; Taylor and Johns in prep).

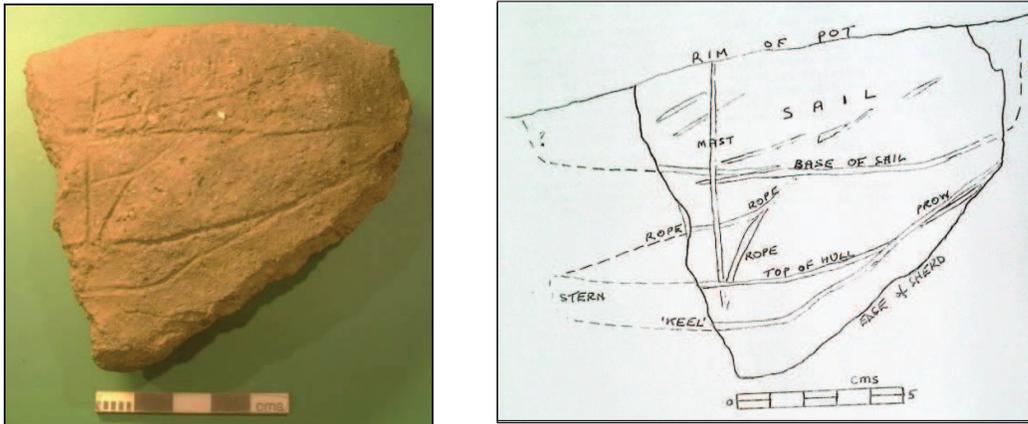


Fig 5.7 The St Agnes 'boatsherd': (left) a photograph of the outer face of the sherd and (right) an interpretation of the lines (Carl Thorpe).

5.3.8 Social relations

During the Early Bronze Age, social and kinship relations were materially manifested and played out through communal burial within entrance graves and the placement of individual burials beneath cairns. During the Later Bronze Age emphasis shifts from monuments to settlements, and social and kinship relations were played out through the continued occupation of a single locale (settlement). In other words, the social significance of burial monuments is transferred to the realm of the domestic: houses metaphorically become monuments. The significance placed upon the remains of ancestors and their places of interment is replaced by a new emphasis upon the places where ancestors once inhabited.

It is interesting to note that between the Later Bronze Age and the Later Iron Age archaeological evidence for burial practices disappears from the archaeological record. It must be presumed that during this period the disposal of the dead was carried out in a way (such as excarnation) that rendered them archaeologically invisible.

5.3.9 Ritual and religion

It is likely that cairns continued to be constructed and reused during the Later Bronze Age and that some of the cairns that comprise the large cairnfields located around the periphery of the islands might date to this period. However, as no excavation has taken place within one of these cairnfields, it is not possible to prove this interpretation.

A further method of burial that may be assigned to this period is suggested by Hencken (1952, 29), who hints at the existence of a Bronze Age urnfield when he refers to 'huge quantities of undecorated pots found and subsequently destroyed on the north-western side of Samson Hill, Bryher'; he also states that a 'further similar cemetery was found by Crawford on St Mary's' (1928, 29). Unfortunately, no further details of these 'urnfields' are available and the character and location of the pottery retrieved is unknown.

5.4 The Iron Age (c 800 BC – AD 43)

Few iron objects survive in the acid soils of Cornwall and Scilly, and pottery and the introduction of hillforts have traditionally been used to identify the beginnings of the local Iron Age. More recent evidence has made the division between the Bronze and Iron Ages less clear, since Cornish pottery formerly regarded as Early Iron Age could also belong to the Later Bronze Age and hillforts elsewhere in Britain are now known to have been constructed in that period (Quinnell 1986, 112-113).

5.4.1 Chronology

The majority of radiocarbon determinations for the Iron Age are from environmental samples. There are two Early Iron Age dates from a house exposed in the cliff face at West Porth, Samson, and two more from a house exposed in the cliff face at Halangy Porth, St Mary's (Ashbee 1983a, 22; Ratcliffe and Straker 1996, 67, 89). There are two Late Iron Age radiocarbon determinations from human bone from the Bryher sword and mirror burial (Marshall 2002-3, 23).

5.4.2 Landscape

The rate of loss of intertidal area increased in the Iron Age but the rate of loss of land declined significantly from what it had been during the Bronze Age and slowed continually after that, such that from the Iron Age onwards land area was very similar to that of today (*ibid*).

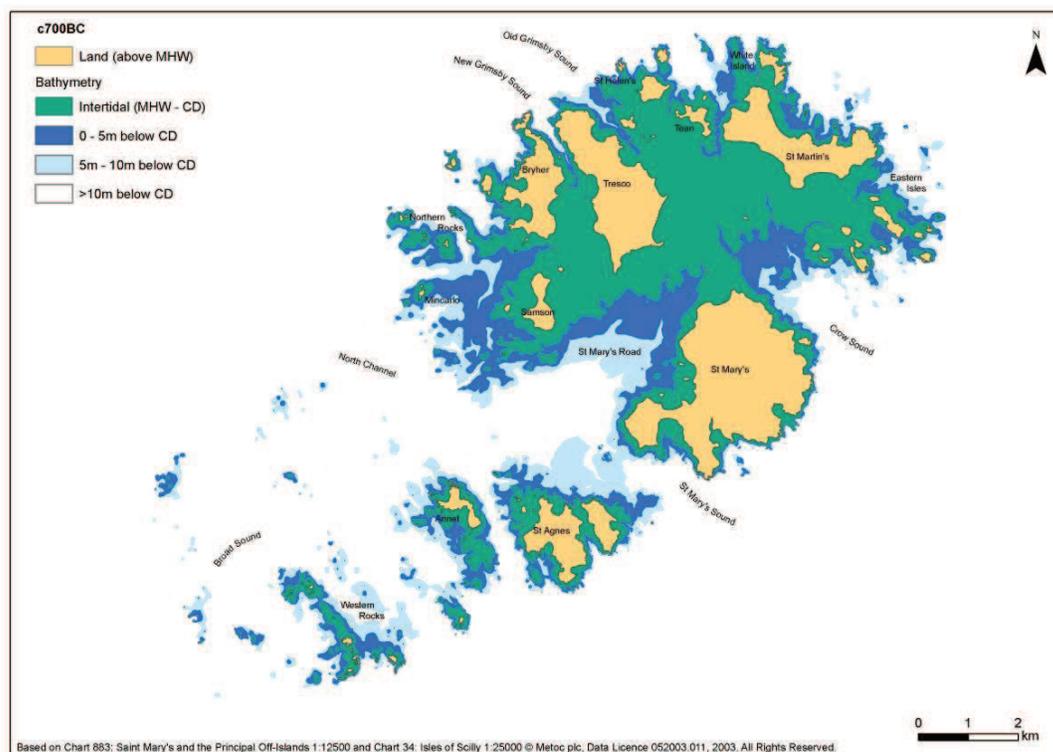


Fig 5.8 Inferred submergence model, c700 BC (based on data from the Lyonesse Project (Charman et al 2012); all details as for Fig 3.3

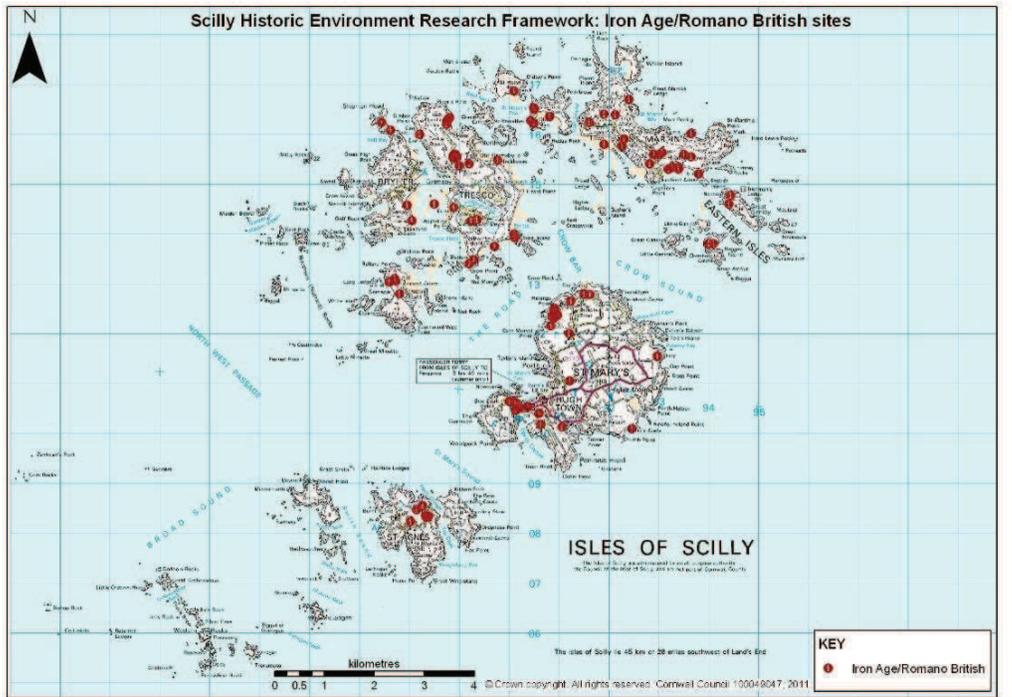


Fig 5.9 Distribution of Iron Age and Romano-British sites recorded in the Cornwall and Scilly HER



Fig 5.10 A reconstruction of the Iron Age/Romano-British settlement on Samson Hill, Bryher (reproduced by kind permission of Jane Stanley)

5.4.3 Settlement

The overall picture is one of continuity of earlier traditions throughout most of the first millennium BC but with some changes occurring after 500 BC. People still lived in open settlements of oval or circular houses (and in some cases perhaps the same houses themselves), farmed small rectilinear fields, used mainly stone tools and similar types of pottery. One of the most distinctive differences between Scilly and mainland Cornwall is the absence in Scilly of the 'rounds', or enclosed farming settlements, which dominated the Cornish landscape in the Late Iron Age and Romano-British period (cf Nowakowski and Johns forthcoming).

Excavated hut settlements at Halangy Down, St Mary's and Nornour indicate continuity between the Iron Age and Romano-British period in Scilly (Dudley 1967; Butcher 1978; Ashbee 1996). Though few other sites are securely dated it is likely that many of the recorded huts and field systems can be assigned to these periods.

The remains of an Iron Age - Romano-British settlement were investigated at Hillside Farm, Bryher, in the vicinity of the sword and mirror cist burial (Fig 5.10; Johns 2002-3). Remains included a stone-walled building, either a byre or shared animal - human habitation, on top of an approximately 10m wide occupation terrace. This was defined to the north (downslope) by a substantial stony lynchet and a settlement boundary made up of a 1m wide, double-faced stone wall with a dense, crushed, limpet midden infill, a construction method noted in other prehistoric Scillonian structures. After falling out of use, the building was infilled with domestic rubbish in the form of a sequence of limpet middens and redeposited burnt material. Another substantial stone building, c 8m in overall diameter, was suggested by geophysical survey results, and an evaluation trench showed this also became a repository for domestic rubbish after its abandonment. An auger survey revealed that midden deposits extend over an area of some 450 sq m in the vicinity of this settlement.

5.4.4 Field systems

One field system securely dated to the Iron Age, 382 cal BC – cal AD 2 (HAR-3485 2140 ±70), is the site at Bar Point, St Mary's, investigated in 1979-80 in advance of sand extraction (Evans 1984, 7-32). Fowler and Thomas (1979, 186) had carried out a preliminary survey which suggested a rectilinear pattern of narrow fields c 16m wide, and in one case only 13m wide, and 20m long. There were two types of boundary, those cutting across the contour were stone banks and those running along the contour were stone banks set on lynchets, which were staggered in contrast to the continuous cross-contour boundaries. There was evidence of cultivation but no trace of cultivation marks, except some shallow grooves in the base of one of the trenches. Phosphate analysis suggested that some fields were used to keep animals in and others were for arable cultivation. Although Fowler and Thomas had recorded one boundary still standing to a height of c 1.5m the investigated boundaries were of slighter construction.

The curvilinear pattern of fields surrounding the cist burials and Iron Age - Romano-British settlement at Hillside Farm, Bryher, is also likely to date from the Iron Age. It includes rectilinear and irregular stone-walled fields with lynchets along the contours. Most of the farmland here retained the ancient pattern until the end of the nineteenth century but had been sub-divided into linear bulb strips by the time of the 1908 Ordnance Survey 25in map (Johns 2002-3).

5.4.5 Cliff castles

There are the remains of two cliff castles in Scilly: Giant's Castle on St Mary's (Fig 5.11) and Shipman Head on Bryher, with possibly a third on Burnt Hill on St Martin's. Ashbee (1974 209-15, fig 46) suggests there were more such sites at Kallimay Point, St Agnes; The Hugh and Little Bay / Porth Seal, St Mary's, Blockhouse Point, Tresco, and Pernagie Point, St Martin's, and also points out that the term 'cliff castles', was likely to have been coined by Borlase during his 1752 visit to Scilly.

Such promontory fortifications are currently interpreted as socio-economic or ritual centres rather than simply defensive strongholds (e.g. Herring 1994). The three cliff castles on Scilly lie roughly equidistant from each other, on the edges of the island group and it is tempting to suggest that they reflect tribal divisions which existed in Scillonian society at this time.

There are no definite examples of hillforts in Scilly, although the Civil War battery on Mount Todden, St Mary's, may have re-used the site of such a monument.



Fig 5.11 Giant's Castle on St Mary's in the early twentieth century (© Gibson Collection)

5.4.6 The material world

Metalwork

There was virtually no evidence for Iron Age metalwork in Scilly before the discovery of the Bryher sword and mirror cist burial in 1999 (Fig 5.12). Within the cist were the fragmentary remains of a crouched human skeleton. In addition to a sword, which survived within a bronze scabbard, the grave goods included a mirror, shield fittings, a sword belt ring, a brooch and a spiral ring (all of copper alloy), together with a shattered tin object. There was also evidence for the grave having contained a sheepskin or fleece and woven textile incorporating goat and other animal hairs. This is the only known Iron Age grave to contain both a sword and mirror, raising interesting questions as to the gender significance of both these grave goods. The unique combination of metal objects will continue to be central to future discussions concerning the development of British Iron Age metalwork.

A long bone fragment from the burial was radiocarbon dated to 193-48 cal BC (OxA-12095, 2098 ±27); the metalwork typology narrows this range to the first half of the first century BC. The dates indicate that the Bryher mirror is the earliest known British decorated bronze mirror and has important national implications for the study of the development of insular Celtic Art in Britain (Johns 2002-3). The discovery has also led

to a reappraisal of British decorated Bronze mirrors; rather than simply being vanity aids buried with moderately wealthy females they have been reinterpreted as having symbolic properties associated with the translation of the soul to the 'Otherworld' (*ibid*).

The only other Iron Age ring - a bronze spiral finger or toe ring - was found on the spoil heap during the 1949 Porthcressa cist-grave excavations (Ashbee 1983, 120-1).



Fig 5.12 The Bryher sword and mirror (English Heritage)

Pottery

Middle and Late Iron Age

The South Western Decorated (SWD) ceramic style is now well established for the third to first centuries BC on the mainland, with a little initial material in the late fourth (Nowakowski and Quinnell 2011, 7.9; Quinnell 2011). This style appears to have been used at similar dates on Scilly. The main assemblage comes from the west area of Nornour (Dudley 1968). Small groups come from Cliff Fields, Tresco, and from Porth Killier (Quinnell 1991) and appear to be present in midden deposits adjacent to the cist cemetery at Porthcressa (Ashbee 1954). A few plain sherds from contexts associated with the cist burial at Hillside Farm, Bryher, are likely to be of this style, with associated radiocarbon dates indicating the second or first centuries BC (Quinnell 2002-3 a). No other sites have produced radiocarbon determinations. Henrietta Quinnell can not confirm the date of the SWD sherds suggested by Robinson (2007, 70) from O'Neil's unpublished excavation on Little Arthur. Neither can she comment on sherds reported from Giant's Castle (O'Neil 1949c, 9).

The house associated with Early - Middle Bronze Age ceramics at Halangy Porth was re-used in the Iron Age. A radiocarbon date covers the fifth to second centuries BC (Ratcliffe and Straker 1996, 89). Pottery published by Ashbee (1983a, fig 9) can be re-interpreted as a variant of SWD (no 3) and as large shouldered jars, probably to be seen as variants of the Plain Jar Group, just possibly from even earlier in the Iron Age. Ashbee (*ibid*) comments that similar sherds to those illustrated were present in the material previously excavated from the site by Gray. A second house, immediately adjacent to that discussed, was located in 1990 (Ratcliffe and Straker 1996, 89). This produced plain sherds of either PJG or SWD type and radiocarbon determinations

covering the seventh to fourth centuries and the fourth and third centuries from different hearth levels (Quinnell 1991). It should be made clear that the extensive settlement on Halangy Down above the Porth produced no Iron Age material, an observation based by Henrietta Quinnell on Ashbee's (1996) site report.

Petrographic work by Roger Taylor on the Bryher cist site identified fine granitic fabrics of a type almost certainly made on the Islands. A rapid scan of some of the Nornour material by Henrietta Quinnell in 2007 identified SWD sherd P57 as gabbroic (Dudley 1968, fig 6).

Recent work on the mainland has now established a start date for Late Iron Age Cordoned Ware in the later second century BC (Quinnell 2011; Quinnell in Gossip, forthcoming b). The style overlapped with SWD for about a century and continued, with a few changes, until the second century AD. On Scilly Cordoned Ware is found at Nornour, both in the west area and also in the top of some house infills in the east area. It was also found with SWD at Cliff Fields, Tresco (Quinnell 1991). Other sites with Cordoned Ware almost certainly date after the Roman conquest and are discussed below. Rapid examination of the Nornour assemblage by Henrietta Quinnell in 2007 identified no 60 (Dudley 1968, fig 7) as gabbroic. Most of the material appears to be made in local granitic fabrics. However, D F Williams identifies the fabric of bowl no 19 (Butcher 1978, fig 25) to be of a distinctive hard fabric containing only quartz and mica, which was probably not sourced in the Islands. This bowl belongs to Threipland's (1956) Type G, probably a drinking vessel. (The interpretation of this vessel by Robinson (2007, 62) as a Late Bronze Age carinated bowl is unlikely: this type of carinated bowl does not occur in the south west and the vessel is similar in all respects to Cordoned Ware Type G.)

Flint and stone

No settlement site of Iron Age or Roman date on Scilly is entirely without flint, but site formation processes on these settlements are not of the kind that allows a clear assessment of the likelihood of redeposition from earlier periods (*cf* Quinnell 2002-3b). There was extensive continued use of local stonework for tools similar to those described above in section 5.3.5.3.

5.4.7 Subsistence

There are few sites dated solely to the Iron Age: Hillside Farm, Bryher (Ingrem 2002-3), and the site on May's Hill, St Martin's (Turk 1984), continue into the Romano-British period.

Plant remains

Evidence for Iron Age crop husbandry is still very limited for Scilly but emmer and barley, including the naked form, continued as cultigens. At present there is no evidence for the cultivation of spelt wheat from Bronze Age or Iron Age sites, unlike other sites in southern Britain, and naked barley does not form part of these mainland assemblages. A limited range of arable weeds includes the acid-loving corn spurrey, fat hen, ribwort plantain and bedstraw (Ratcliffe and Straker 1996, 12).

Several shallow parallel grooves, interpreted as possible ploughmarks were found at the base of the soil during the excavations at Bar Point, St Mary's (Evans 1984, 25).

Animal remains

The potential of limpet middens for the recovery of food remains, particularly bird, fish and mammal bone and shell, is well known in Scilly at sites such as Porth Killier, Porthcressa and Tean (Ratcliffe and Straker 1996). The bone assemblages from the Hillside Farm middens provided the most useful information on diet, farming practice and exploitation of wild resources, although interpretation was limited by the small sample size. Breeding of sheep and/or goats could be demonstrated by the presence of neonatal bones and cattle and pigs were also kept. A wide range of birds and fish were

collected for food, interpreted as low-risk exploitation of inshore seabirds and fish. The finding of mature red sea bream, usually regarded as typical of offshore waters, raises the question of where this species was caught. The Scillonian batholith is surrounded by deep water, however, and it is likely that the former inhabitants of Scilly were able to catch a range of fish without the need to fish far offshore (Straker 2002-3, 58-60).

Animal hoof-prints dating to the Iron Age were found on a trackway during the excavations at Bar Point, St Mary's (Evans 1984, 23-25). These were of two main types, cloven and uncloven. The uncloven were probably those of ponies or small horses. The cloven hoof-prints were of several sizes, some being large cattle and some smaller and probably young cattle. Some of the very small ones may have been those of sheep or goats.

5.4.8 Transport

Ruts were found in the trackway revealed during the excavations at Bar Point, St Mary's (Evans 1984, 23-25). These were 50-100mm wide and 30mm deep with sloping sides and flat bottoms. It is possible that these were caused by 'slide cars' being pulled uphill by ponies whose hoof-prints had also been found.

There is no archaeological evidence of boats of any type from this period in Scilly. Two iron anchors have been found in Britain from this period, one complete with chain. They could be of Mediterranean origin but nevertheless are indicative of increased seafaring activity. Documentary and representational evidence shows increasingly sophisticated sea-going craft in this period in Europe, the gold model boat found at Broighter in Northern Ireland in 1896, for example, has a mast, oars and a yardarm. It is perhaps similar to the Veneti craft described by Caesar (Weatherhill 2005), although there is some debate as to whether the model shows a hide or plank boat (Ransley *et al* 2011).

The large oak trees required for plank boats may have become less available as woodland was cleared, and it is possible that the hide-covered boat, similar to the *currach*, comes into its own as the seagoing craft of choice in this period. Their lightness of construction, an advantage in relation to buoyancy and beaching, means that their survival in archaeological deposits is significantly poorer than that of plank boats (McGrail 2004).

5.4.9 Ritual and burial

Burial under cairns may have continued throughout the Bronze Age and Early Iron Age until the introduction of Porthcressa-type cist graves in the Late Iron Age (Thomas 1985, 133), although the majority of the dead were probably disposed of in some way, such as excarnation, that has not left any traces in the archaeological record,

Porthcressa-type cist graves

The Late Iron age and Romano-British south-western cist-burial tradition was identified through the chance discovery and excavation of a number of small cemeteries and isolated burials around the coasts of Cornwall and the Isles of Scilly, with a couple of examples in Devon, and was possibly the normative burial rite of the Dumnonii (*cf* Thomas 1966, 77). In Scilly these burials are known as Porthcressa-type cist graves after the type site on St Mary's where Paul Ashbee investigated ten cists and an uncisted burial in 1949-50 (Ashbee 1954; 1979).

Approximately 36 of these cist graves have been discovered at twelve sites in Scilly: Par Beach, St Martin's (Crawford 1928; O'Neil nd a and c); Old Man, Tean (Tebbutt 1934); Porthcressa, St Mary's (Ashbee 1954, 1979); Poynter's Garden, St Mary's (Dudley 1960-1); Green Bay, Bryher (Thomas 1977); the east side of Porthcressa Bay, St Mary's (Ratcliffe 1999); Halangy Porth, St Mary's (Ratcliffe 1996, 23); East Porth, Samson (Ratcliffe and Sharpe 1990); Lawrence Brow, St Martin's (Ratcliffe 1993, 12); Hillside Farm, Bryher (Johns 2002-3), Toll's Porth, St Mary's (Ratcliffe 1994, 13-14); and Lunnon Farm, St Mary's (Butcher 2002; Johns *et al* 2011). With the exception of the Lunnon Farm cists, all were in low-lying locations, below, just above or slightly

inland of the modern shoreline, having been revealed by coastal erosion, cultivation or modern development.



Fig 5.13 The Iron Age sword and mirror cist burial at Hillside Farm before excavation in October 1999 (photo: Cornwall Council)

Generally oval or rectangular in plan, and occasionally coffin- or D-shaped, the cists are set in grave pits and constructed of stone slabs placed on edge, coursed walling, or a combination of both building techniques. They are covered by stone slabs set at right angles to the main axis. Cist dimensions range from 0.9m to 1.6m in length, 0.5m to 1.0m in width, and 0.2m to 0.8m in depth. The majority are aligned north – south.

Where skeletal remains have survived in the acid soils, they represent the remains of crouched inhumation burials (with the body lying on its side). Grave goods often accompany these and include bronze brooches, pottery vessels, glass beads and, in one instance, an iron pin. The frequent occurrence of brooches suggests that they played a special role in the funerary rite and may have been used to hold together a shroud or, perhaps, everyday costume.

The sword and mirror cist burial at Hillside Farm is the richest south-western cist grave yet to be discovered (Fig 5.13). The sword and mirror link it to the wider British warrior and mirror burial traditions; these types of burial, which share similar cultural associations and distribution patterns, crosscut local burial traditions where they exist (Johns 2002-3).

Typological dates for most of the brooches and pottery recovered from the Porthcressa cemetery post-date the end of the first century AD. This led Ashbee to consider the graves to be wholly Roman in date and surmise that 'refugees' from the Cornish mainland may have imported the cist-burial tradition to Scilly sometime after the Roman conquest (Ashbee 1979, 78; 1986, 207). The radiocarbon determination and finds from the Hillside Farm cist showed that such cists originated in the Iron Age.

Statue menhir

An interesting decorated standing stone, found in a field wall on Chapel Down, St Martin's, which represents the face and upper torso of an anthropomorphic figure (Ratcliffe and Parkes 1989b, 259-60; Fig 5.14). The base of this stone has been broken

off from a larger stone that may once have stood upright upon the Down and it has been interpreted as a Romano-Celtic idol (Ashbee and Thomas 1990).



*Fig 5.14 The statue menhir from St Martin's
(© Rosemary Robertson)*

Fogou

In 2001 a fogou - an underground chamber-like passage - was discovered at Peninnis on St. Mary's. The curving passage is walled by granite slabs, roofed by five large capstones and is nearly five metres long, entered through a smaller low passage or 'creep'. Fogous were constructed during the later Iron Age and may have been used as safe refuges during raids, religious sanctuaries or cool storage areas for foodstuffs. Several are known in West Cornwall but this is the first to be discovered on Scilly.

5.5 Human osteological remains

The only Iron Age human bone from Scilly that has been analysed is from the Bryher sword and mirror burial (Mays et al 2002-3). Survival of bone was very poor and less than 150g of bone fragments were present; these were mainly long-bone and skull fragments. The surfaces of the long-bone fragments were heavily eroded; the skull fragments a little less so. The only long-bone fragment that was identifiable to skeletal element came from the distal part of a femur shaft. Tooth crown fragments were preserved, although only the enamel component survived; there was no dentine.

The burial was clearly that of an adult. Examination of the dental remains indicated a mandibular first molar crown at Brothwell's (1981, fig 3.90) wear stage 3, and a maxillary third molar crown at wear stage 2. This suggests an age at death of approximately 20-25 years.

It was impossible to identify the sex of the individual from bone morphology but an attempt was made to achieve this using ancient DNA; the results obtained proved to be non-diagnostic, probably due to poor survival of DNA, and it was therefore not possible to identify the sex of the individual.

Despite the severe diagenesis seen in the present case, analyses for nitrogen and carbon stable isotopes from long-bone fragments were successful. These provide evidence regarding protein sources in human diets. Since collagen turnover is slow, information is on long-term average diets.

In a north-west European context, carbon stable isotope values give an indication of the relative contribution of marine foods to dietary protein; the results indicated that the Bryher person obtained only a small proportion (perhaps a quarter or less) of his or her dietary protein from seafoods, despite the island location.

5.6 Scientific dating

5.6.1 Radiocarbon dates

The 61 radiocarbon determinations listed below in Figure 5.15 below have all been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period to which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they appear.

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
HAR-239	3260 ±280	2300-840	Nornour	Charcoal (oak & larch) from lower midden in passage between houses 1 & 3.	Butcher 1978, 29-112
HAR-1715	3190 ±110	1741-1133	Little Bay, St Martin's	Charcoal from hearth F in House 2.	Neal 1983
OxA-3647	3220 ±70	1682-1323	Porth Killier, St Agnes	Charred seeds (<i>Hordeum sp.</i>) from layer 14 at top of midden in house exposed in cliff-section	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1995, 421-2
GU-5413	3250 ±50	1636-1422	Porthcressa, St Mary's	Shell (<i>Patella Vulgata</i>) from midden 3 in house exposed in cliff-face	Ratcliffe & Straker 1996, 77
OxA-26370	3276 ±29	1626-1423	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
HAR-3694	3100 ±100	1608-1056	Higher Moors, St Mary's	?Peat.	Scaife 1984
OxA-3648	3170 ±65	1610-1301	Porth Killier, St Agnes	Charred seeds (<i>Hordeum sp.</i>) from layer 14 at base of midden in house exposed in cliff-section	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1995, 421-2
OxA-26367	3246 ±30	1609-1447	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-4701	3165 ±55	1605-1304	Porthcressa, St Mary's	Charcoal (Rosaceae) from layer 3 midden house exposed in cliff-face	Ratcliffe & Straker 1996, 77; <i>Archaeometry</i> 1995, 421-2
OxA-26368	3215 ±28	1531-1422	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-26365	3157 ±29	1498-1391	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-26366	3145 ±29	1496-1323	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
OxA-26371	3146 ±29	1496-1323	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
HAR-457	2990 ±100	1442-934	Nornour	Charcoal bulk sample from midden in the lower fill of Building 9.	Butcher 1978, 29-112

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
SUERC-28999	3090 ±30	1430-1270	Crab's Ledge, Tresco	Lowermost sample with high saltmarsh pollen content. Bulk organic sediment (humic acid fraction)	Marshall et al 2012
HAR-460	3020 ±70	1426-1054	Nornour	Shell from midden in the lower fill of House 9	Butcher 1978, 29-112
Wk-19092	3045 ±42	1416-1133	Dolphin Town, Tresco	Potsherd residue, layer 16 in house 13	Taylor & Johns, 2009-10
OxA-26369	3066 ±28	1411-1266	Knackyboy Cairn, St Martin's	Cremated bone (human)	Mulville & Sawyer forthcoming
Wk-5691	2973 ±73	1405-1006	Porth Killier, St Agnes	Fill (150) in cist [163] below cairn [154].	Ratcliffe <i>et al</i> forthcoming
OxA-4700	2936 ±55	1370-978	Porth Killier, St Agnes	Charcoal (<i>Calluna</i>) from layer 5	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1995, 421-2
OxA-22580	2953 ±39	1310-1020	Crab's Ledge, Tresco	Below OSL sample. Bulk unidentified plant macrofossils	Marshall et al 2012
Wk -5687	2841 ±68	1249-838	Porth Killier, St Agnes	Pit [50]	Ratcliffe <i>et al</i> forthcoming
OxA-22578	2896 ±26	1200-1000	Crab's Ledge, Tresco	Uppermost sample with high saltmarsh pollen content. Bulk unidentified plant macrofossils	Marshall <i>et al</i> 2012
HAR-1726	2780±80	1191-799	Little Bay, St Martin's	Charcoal from hearth F in House 2	Neal 1983
OxA-5290	2755±60	1043-804	Bonfire Carn, Bryher	Charcoal (gorse broom) from layer 5 in house exposed in cliff-face	Ratcliffe & Straker 1996, 80
OxA-22579	2824 ±29	1060-900	Crab's Ledge, Tresco	Above OSL sample. Bulk unidentified plant macrofossils	Marshall <i>et al</i> 2012
OxA-5290	2755 ±65	1056-799	Bonfire Carn	Charcoal (Ericaceae from layer 5 as above	Ratcliffe & Straker 1996, 80
Wk-5689	2794 ±74	1191-806	Porth Killier, St Agnes	Hut [21]. C14 dates inconsistent with stratigraphy	Ratcliffe <i>et al</i> , forthcoming
SUERC-38232	3005 ±30	1322-1153	Higher Town, St Agnes	Carbon residue	Taylor & Johns, in prep
HAR-240	2690 ±90	1114-551	Nornour	Charcoal from fill of hearth 2 (NN71) from house 5	Butcher 1978, 66
SUERC-1046-895	2805 ±30	1046-895	Higher Town, St Agnes	Grain: wheat	Taylor & Johns, in prep
SUERC-34962	2745 ±35	976-814	Higher Town, St Agnes	Carbon residue	Taylor & Johns, in prep
Wk -5686	2641 ±718	976-544	Porth Killier, St Agnes	Pit [50].	Ratcliffe <i>et al</i> , forthcoming
BETA-301603	2720 ±30	920-810	Lower Moors, St Mary's	Decayed plant material	Perez forthcoming

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
OxA-3651	2570 ±65	841-417	West Porth, Samson	Charred seeds (<i>Hordeum sativum</i>) from layer 8 in house exposed in cliff-section	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1994, 363
SUERC-29002	2620 ±30	830-770	Bathinghouse Porth, Tresco	Lowermost sample with high saltmarsh pollen. Bulk organic sediment (humic acid fraction)	Marshall <i>et al</i> 2012
OxA-3650	2545 ±65	814-417	West Porth, Samson	Charcoal (<i>Ulex sp.</i>) from layer 8 in house exposed in cliff-section	Ratcliffe & Straker 1996, 67; <i>Archaeometry</i> 1994, 363
HAR-3724	2540 ±80	815-412	Higher Moors, St Mary's	Peat	Scaife 1984
Wk-5688	2533 ±79	809-413	Porth Killier, St Agnes	Hut [21]	Ratcliffe <i>et al</i> , forthcoming
SUERC-39454	2560 ±38	806-735	Lower Moors, St Mary's	Peat	Perez forthcoming
SUERC-39453	2481 ±38	769-48	Lower Moors, St Mary's	Peat	Perez forthcoming
SUERC-29001	2465 ±30	770-410	Bathinghouse Porth, Tresco	Above OSL sample. Bulk organic sediment (humic acid fraction)	Marshall <i>et al</i> 2012
SUERC-29000	2435 ±30	760-400	Bathinghouse Porth, Tresco	Uppermost sample with high saltmarsh pollen. Bulk organic sediment (humic acid fraction)	Marshall <i>et al</i> 2012
HAR-3723	2360 ±60	753-234	Higher Moors, St Mary's	Peat	Scaife 1984
OxA-4697 (CALIB 4.1)	2390 ±50	752-387	Halangy Porth, St Mary's	Charcoal (<i>Ulmus/Rosacae/Calluna</i>) from layers (5) and (6) from hearth [23] in house exposed in cliff-face	Ratcliffe & Straker 1996, 103
HAR-1313	2260 ±90	726-53	Halangy Porth, St Mary's	Charcoal from entrance of house exposed in cliff-face	Ashbee 1983a, 22; <i>Radiocarbon</i> 1990, 65
GU-5059	2180 ±100	409 cal BC- AD 49	Crab's Ledge, Tresco	Column VI from basal 20mm of upper peat. Of limited value due to high deviation?	Ratcliffe & Straker 1996, 128
OxA-4696	2250 ±50	398-202	Halangy Porth, St Mary's	Charcoal (<i>Ulmus Prunus</i>) from layer (4) from hearth [23] in house exposed in cliff-face	Ratcliffe & Straker 1996, 103
OxA-12095	2098±27	193-48	Bryher sword & mirror cist burial	Human bone	Marshall 2002-3, 23
OxA-10255	2100 ±35	341-40	Bryher sword & mirror cist burial	Human bone	Marshall 2002-3, 23
GU-5057	1980 ±80	182 cal BC - AD 220	Crab's Ledge, Tresco	Sample 2 from basal 10mm of exposed peat	Ratcliffe & Straker 1996, 128
HAR-3483	2140 ±70	382 cal BC - cal AD 2	Bar Point, St Mary's	Charcoal from ditch alongside field boundary	Evans 1985

Lab Ref	¹⁴ C age BP	Cal BC @ 95%	Site	Context	Reference
GU-5232	2140 ±60	372-42	Crab's Ledge, Tresco	Column VI from intertidal peat deposit	Ratcliffe & Straker 1996, 128
WK-5695	1940 ±130	351 cal BC – cal AD 385	Old Town Bay, St Mary's	Base of lower peat deposit. Of limited value due to high deviation?	Ratcliffe and Straker 1998
SUERC-32921	1980 ±30	180 cal BC – cal AD 10	Old Town Bay, St Mary's	Bulk: organic sediment including Phragmites stem & ?Monocot stem (humin fraction)	Marshall <i>et al</i> 2012
BETA-301601	2050 ±30	160 cal BC – cal AD 10	Lower Moors St Mary's	Decayed plant material	Perez forthcoming
GU-5056	1880 ±100	101 cal BC – AD 389	Par Beach, St Martin's	Sample 2 from top 10mm of intertidal peat	Ratcliffe & Straker 1996, 128. Of limited value due to high deviation?
BETA-301602	2000 ±30	50 cal BC – AD 60	Lower Moors St Mary's	Decayed plant material	Perez forthcoming
SUERC-32920	1980 ±30	50 cal BC – cal AD 80	Old Town Bay, St Mary's	Bulk: organic sediment including Phragmites stem & ?Monocot stem (humic acid fraction)	Marshall <i>et al</i> 2012
SUERC-38088	1965 ±35	50 cal BC – cal AD 130	Porth Coose, St Agnes	Humic acid, 22–23cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-39448	19563 ±38	Cal AD 1 – 94	Lower Moors St Mary's	Peat	Perez forthcoming

Fig 5.15 List of Later Bronze Age and Iron Age radiocarbon dates

5.6.2 OSL dating

Optically Stimulated Luminescence (OSL) dating was carried out on submarine and intertidal deposits recovered during the Lyonesse Project in 2010. Six Late Bronze Age and Iron Age OSL ages were obtained (Roberts 2012).

Location	Lab no.	Context	Material	OSL Age	Calibrated date (95% confidence)
Bathinghouse Porth, Tresco	161/LPTR3-1	12–14cm below surface of intertidal sand-peat	Quartz	2630 ±150	930–320 cal BC
Crab's Ledge, Tresco	161/LPTR1-1	0.08 ±0.005m down core	Quartz	3340 ±190 BP	1720–950 cal BC
Lower Moors, St Mary's	184/LM10-28-277	271–277cm down core	Quartz	3130 ±410	1530–710 cal BC
Lower Moors, St Mary's	184/LM10-28-161	161–165cm down core	Quartz	3000 ±370	1360–620 cal BC
Lower Moors, St Mary's	184/LM10-28-217	217–221cm down core	Quartz	3050 ±280	1320–76 cal BC
Crab's Ledge, Tresco	184/LPTR-4A	0.19m down core	Quartz	1890 ± 110 BP	110 cal BC–cal AD 340

Location	Lab no.	Context	Material	OSL Age	Calibrated date (95% confidence)
Bathinghouse Porth, Tresco	161/LPTR3-1	12–14cm below surface of intertidal sand-peat	Quartz	2630 ± 150	930–320 cal BC
Crab's Ledge, Tresco	161/LPTR1-1	0.08 ± 0.005m down core	Quartz	3340 ± 190 BP	1720–950 cal BC

Fig 5.16 List of Later Bronze Age and Iron Age OSL Ages expressed as years before AD 2010, rounded to the nearest 10 years

5.6.3 Magnetic dates

Archaeomagnetism provides a date of last use for any feature that has been subjected to intensive heating so can provide a date of last use for settlement or industrial activity. Like radiocarbon dating, archaeomagnetic dating requires a calibration curve, known as a secular variation curve (SVC) in order to produce a date in calendar years. Three radiocarbon determinations (Jordan *et al* 1994) and an archaeomagnetic direction (Clark *et al* 1988) were collected during the excavations at Little Bay, St Martin's, in 1981. Figure 5.17 below provides details of the magnetic and chronological data recovered from this site as they will be incorporated into the archaeomagnetic master curve (Clelland and Batt nd).

Sample	Dec	Inc	Alpha-95	Previous archaeological date range	Data in the revised database
	353.4	66.2	3.1	700BC - AD43	1425 BC ± 325

Fig 5.17 Details of magnetic and chronological data from Little Bay, St Martin's (Clelland and Batt nd)

Magnetic samples were taken during the 1969-73 excavations at Nornour (Clark 1978, 66-67): SC 50-53 and SC 40-46 were taken from the burnt natural soil at the base of hearth 1 and from the contents of hearth 2 in House 6; SC 60-69 was obtained from a hearth under the east wall of Building 7. The angles of declination and inclination are given in the report but not dates in calendar years.

6 Romano-British (AD 43 – 410)

Edited by Charles Johns from contributions from Sarnia Butcher, Kevin Camidge, Dan Charman, Ralph Fyfe, Andy M Jones, Steve Mills, Jacqui Mulville, Henrietta Quinnell, and Paul Rainbird.

6.1 Introduction

Although Scilly was a very remote part of the Roman Empire it occupied a pivotal position on the Atlantic façade along the routes of trade and cultural interchange between Brittany and Western Britain; unlike Cornwall, however, it was not a source of streamed tin. The cultural origins of Roman Scilly are rooted in the local Iron Age but sites can be identified which reflect the cult practices of the wider Roman world. Charles Thomas (1985, 170-2) envisaged Roman Scilly as a place of pilgrimage, dominated by a shrine to a native marine goddess at Nornour in the Eastern Isles. The rich Roman finds from that site are among the most iconic and enigmatic emblems of Scilly's archaeological heritage. The main characteristics of Scilly's Romano-British (AD 43 to AD 410) resource are summarised in this review.

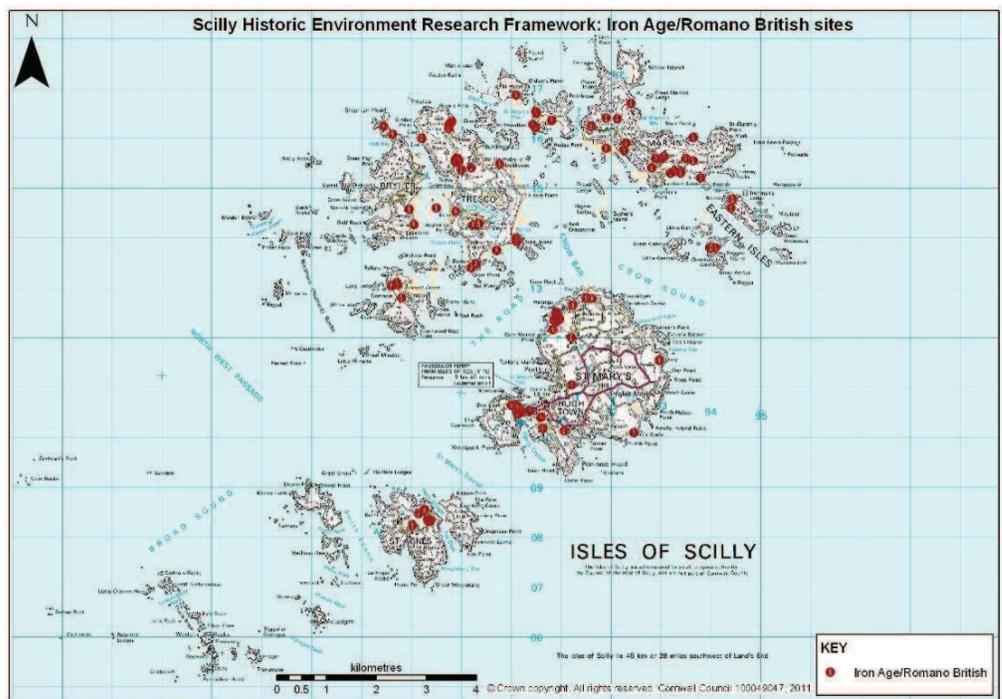


Fig 6.1 Iron Age and Romano-British sites recorded in the Scilly HER

6.2 Landscape and environmental background

Results from the Lyonesse Project (Charman *et al* 2012) suggest that the present pattern of islands was largely formed by this period, although the intertidal zone was much greater in extent (Fig 6.2).

Radiocarbon dating and environmental analysis of the lower peat deposit sample from Old Town Bay, St Mary's, in 1997 indicated that from the Late Iron Age to the early medieval period the site consisted of an area of shallow freshwater surrounded by a largely open landscape with arable fields and pasture bordering the wetland (Ratcliffe and Straker 1998, 1).

Pollen from Old Town Bay, St Mary's, analysed by the Lyonesse Project, suggests herb-rich grassland with a background of coastal indicators; aquatic plants suggest standing

water throughout the Roman period and into the early medieval. Samples from Bathinghouse Porth, Treco, indicate a saltmarsh environment at the end of the Roman and beginning of the early medieval period. Samples from Porth Coose, St Agnes, show low background levels of woodland and wet grassland with very high *Plantago* and other disturbance indicators becoming increasingly aquatic during the same period (Charman *et al* 2012).

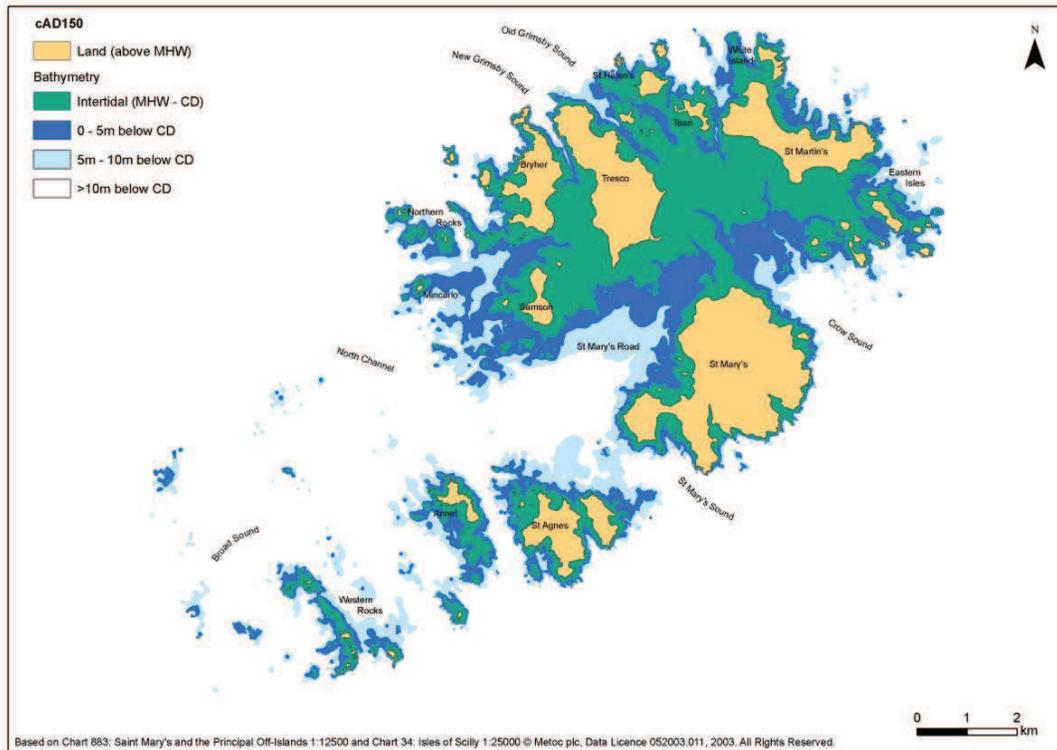


Fig 5.8 Inferred submergence model, AD 150 (based on data from the Lyonesse Project (Charman *et al* 2012); all details as for Fig 3.3

6.3 Chronology

There is general lack of radiocarbon dates from this period. Of the 18 determinations only one is from an excavated site (Nornour); the others are all from environmental samples. Tables of radiocarbon determinations and OSL ages relating to the period are presented at the end of the chapter (Figs 6.5 and 6.6).

6.4 Settlement

Simple stone houses were still the norm at this period but the walls were sometimes clay-mortared and rendered. The settlement at Halangy Down seems to date from the mid second century AD (below, Section 6.5.3). One of the excavated structures there has much in common with the courtyard houses characteristic of West Cornwall during this period (Fig 6.3). A long, narrow entrance passage leads through a massive enclosing wall into a sub-rectangular courtyard off which are two good-sized oval and circular living rooms (one with a pentagonal recess in its wall – perhaps a sleeping compartment) and a tiny sub-circular chamber that could have been a store. This is the building's final form and is the culmination of several progressive stages of construction. The Cornish examples had open central courtyards but it is possible that the house at Halangy Down may have been entirely roofed (Ratcliffe and Johns 2003, 11-12).

No equivalents to the Cornish rounds have yet been identified. In Cornwall distinctive oval buildings are now recognised as the principal house form of the Roman period (Quinnell 2004, xii).



Fig 6.3 The courtyard house at Halangy Down (photo: Cornwall Council)

6.5 The material world

6.5.1 Metalwork

The Nornour finds

By far the most unusual discovery in Scilly relating to this period is the collection of Roman material recovered from Nornour. The settlement there was excavated in the 1960s and early 1970s and consisted of 11 circular stone buildings situated just above high water. The buildings were occupied and continuously modified from the Middle Bronze Age to the end of the Iron Age. During the Roman period most of the settlement was abandoned but a large collection of Roman artefacts dating from the late first to fourth centuries AD were found in the upper levels of buildings 1 and 2 (Butcher 1993). These comprised over 300 copper-alloy brooches (Fig 6.4), c 25 finger rings, 10 bracelets, 83 Roman coins, c 22 glass beads, 13 pipe-clay figurines, c 30 miniature pots (below, Section 6.5.1.2), and a number of other Roman artefacts (Butcher 2000-1).

This is a large and unusual collection of objects to be found in the last occupation phase of a remote prehistoric round house: '*. . . it is probably true to say that there are more Roman-style artefacts (other than pottery) from Nornour than are known from the whole of Cornwall and Devon west of Exeter*' (Butcher 1993).

The site was initially interpreted as a brooch-making workshop of the Roman period (Dudley 1968) but has since been reinterpreted as a shrine (Butcher 1978; 1993; 2000-1), which Thomas (1985) suggests may have incorporated a fire or beacon. Fulford (1989) considered the objects as evidence of a Roman shipwreck (or possibly two different wrecks given the date span) because the objects are not varied enough to compare with the personal items offered at shrines and temples; however, most

recently Reece (2011, 256) has noted that 'The coins from this site are unusual both in number and in unbroken sequence and this must suggest constant visitation from people from the highly Romanised parts of either Britain or Gaul.'

Whatever the genesis of this remarkable collection of objects, they almost certainly have a maritime connection. Crucial to our understanding of this site would be a better understanding of the Roman coastline around it, as this (as suggested by Thomas 1985, 165-72) may have been 'a harbour for Roman Scilly' a safe haven from easterly gales suitable for mariner-pilgrims which is conspicuous by its absence today.



Fig 6.4 Brooches from Nornour (Isles of Scilly Museum)

Coins

Roman coins from Scilly were catalogued by Roger Penhallurick (2009, 17-18, 257-70). Only one coin earlier than Roman Imperial has been found, a Republican *denarius* dating to c 109 BC ploughed up at North Farm, St Martin's, in the 1960s. Penhallurick noted that Julius Solinus observed that the inhabitants of Scilly 'refuse money' and prefer to barter so that 'it is hardly surprising that few early coins have been found there'. Most of those reported date from the later empire.

Penhallurick recorded the following Roman Imperial coins from Scilly: one second century AD bronze coin from St Agnes; a *denarius* of Trajan (AD 98-117) and a half *centenionalis* of Magentius (AD 350-353) from St Martin's; half a dozen silver coins of Constantius (or Constantius II), Julian and Honorius dating from AD 351 to AD 395 found on Samson in the 1870s (their whereabouts is now unknown); two *sesterii* of Marcus Aurelius (AD 161-180) and a *sestertius* of Septimius Severus (AD 193-211) from Tean (Thomas 1960b, 17-18); a *follis* from Tresco Abbey Gardens; a *sestertius* of Marcus Aurelius (AD 161-180) from an unknown site on Tresco and a rumour of a hoard found by a metal detectorist at Merchant's Point, Tresco, 'some years ago'.

In addition to these other Roman coins have been found by Michael Tangye (The Scillonian 2007/8, no 266) and a brass sesterius of Hadrian (AD 119) was found by him at the north end of Samson Hill, Bryher in 2008 (The Scillonian 2010, no 271).

The coins from Nornour are not typical of Romano-British hoards for a number of reasons. Forty-five per cent are late first century to Commodus (177-192) issues, which are rare on rural sites whether religious or secular, and 36% are of the House of Constantine, sandwiched between a small number of later third and later fourth century coins. Also late third century radiate coins are scarce among the Nornour coins although they are the commonest coins found on Romano-British sites elsewhere, including Cornwall.

As mentioned above, Fulford (1989) sees the Nornour coins as deriving from perhaps two dispersed hoards, the first ranging in date down to Commodus, the second comprising the remainder in which the handful of third century radiate coins would not be out of place. Penhallurick (2009) points out that there are problems with this interpretation: why should coins from two shipwrecks separated by c 200 years turn up on the same site and why should the coins and other finds assigned to the first wreck be left untouched? He sees a shrine of some sort being the best explanation of the current evidence, and this explanation is supported by the conclusions of Reece (2011, 254). Reece's comparison of the Roman coins from Nornour with Carvossa and Trelvelge in Cornwall is presented below in Figure 6.5.

Carvossa Nornour Trelvelge

Silver:

Nero	1	-	-
Vespasian	1	-	-
Domitian	1	-	-

Bronze:

Vespasian Sestertius	-	1	-
Dupondius	2	4	-
As	1	2	1
Vespasian or Titus Dup/As	-	1	-
Domitian Dupondius	1	2	-
As	3	2	-
Late first century Dupondius/As	-	3	-
Trajan Sestertius	-	3	-
Dupondius	-	7	-
As	-	3	1
Trajan or Hadrian Dupondius	-	1	-
Hadrian Sestertius	-	1	-
Dupondius	1	1	-
As	1	1	-
Antoninus Pius Sestertius	-	1	-
Dupondius	-	2	-
Faustina I Dupondius	-	1	-
As	-	2	-
Marcus Aurelius Caesar Dupondius	-	2	-
Marcus Aurelius Aug Sestertius	1	2	-
Dupondius	-	1	-
Faustina II Dupondius	-	2	-

	Carvossa	Nornour	Trevelgue
Commodus Sestertius	-	1	-
Crsipin Dupondius/As	-	1	-
Lucilla Sestertius	-	1	-
Julia Domna Sestertius	-	1	-
Postumus	-	1	-
Claudius II	-	2	1
Tetricus I	-	1	-
Tetricus II	1	4	-
270-309	0	0	0
309-13	-	1	-
313-17	0	0	0
317-20	-	-	1
320-24	-	5	3
324-30	-	1	-
330-41	-	15	15
345-48	-	6	1
348-50	-	1	2
350-53	-	2	11
353-60	-	0	6
364-78	-	2	32
388-402	-	0	2

Fig 6.5 Comparison of coins from Trevelgue, Carvossa and Nornour (from Reece 2011)

Brooches

In Scilly most of the relatively few brooches found (apart from the group of 300-plus from Nornour) are of first century AD types.

Brooches are a characteristic of Scillonian Iron Age and Roman-period cist graves. Of the ten cist graves excavated by Paul Ashbee at Porthcressa, St Mary's, in 1949, three contained two brooches each, and four only one (Ashbee 1979, 63). Of the five cist graves excavated by Dorothy Dudley at Poynter's Garden, St Mary's, only one contained metal finds, fragments of iron and bronze pins (Dudley 1960-1, 222). The cist grave on Old Man, Tean contained two bronze brooches and possibly the remains of an iron penannular brooch or iron ring (Tebbutt 1934). With one exception, the disc brooches from the Porthcressa cists are all dated to the first century AD, as are the two brooches from the Old Man cist (Ashbee 1979, 78).

A decorated copper alloy brooch of the 'Colchester' type was found during recent excavations at Higher Town, St Agnes (Butcher, forthcoming). It is of a type common in south-east Britain in the first half of the first century AD and found in smaller numbers in other parts of Britain. The brooch was found in a pit and appears to be the result of deliberate deposition rather than casual loss.

Bronze objects from Tean

A possible bronze ornament, an early Roman-period bronze brooch, a small fragment of strip bronze and an object made of bronze wire are known from the Roman period midden at Tean (Thomas 1960b, 17-20).

Iron

From the midden at Tean there were also numerous pieces of heavily corroded iron, including a gouge and fragment of a small saw blade, possibly Roman period (Thomas 1960b, 20)

Tin

Scilly has sometimes been identified as the tin producing islands or Cassiterides referred to by classical writers (below, Section 6.6.6) and it is a popular misconception that Scilly was a source of tin in Roman times and / or an important staging post in the export of Cornish tin to Greece and Rome. There are veins of tin on three or four of the islands, particularly at the north end of Tresco, but it has never been viable to mine or stream tin on Scilly (Thomas 1985, 150-1).

6.5.2 Glass and amber

Glass beads were found in one of the Parson's Field cist graves (Dudley 1960-1), and two amber beads in the cist grave at Lawrence Bay, St Martin's (Lewis 1948, pl Xb). From the Roman-period midden at Tean there was a fragment of Roman or early medieval glass (Thomas 1960b, 20-1).

6.5.3 Ceramics

Past work on Roman-period ceramics in Scilly has been hampered by reference being made to Cornish material of Roman date, a subject not properly understood until research carried out by Henrietta Quinnell following the excavation of Trethurgy Round (Quinnell 1986) and not fully published until 2004 (Quinnell 2004, 5.6.2). This research has established that Cordoned Ware continued, with some copying of Roman forms, until the second century AD, described as Second Phase Cordoned Ware (*ibid*). It has also shown that some cordoned forms continued as a strand of Romano-Cornish ceramics until at least the end of the Roman period, Third Phase Cordoned Ware. Other contemporary forms broadly copy cooking pots and serving bowls in the black-burnished wares manufactured around Poole Harbour in Dorset. All pottery manufactured in Cornwall during the Roman centuries appears to have been gabbroic. A reference Type series is set out in Quinnell (2004, 5.6.3). Given this background, it is not surprising that published dates for Roman-period assemblages need substantial review.

By the time that identifiable Roman ceramic forms appear on Scilly the use of local granitic clays had probably ceased, replaced by gabbroic fabric from the mainland. The earliest site at which this is clearly demonstrable is the midden adjacent to the Iron Age cist burial at Hillside Farm, Bryher, in the late first century AD (Quinnell 2002-3); the midden continued in use for perhaps a century. Ceramics here are gabbroic but the assemblage is small. The largest and best published Roman-period assemblage is that from the settlement at Halangy Down (Samuels 1996) which included thin-section petrological work by D F Williams. About 80% of the published assemblage was gabbroic, the remainder granitic. Some (*ibid*, fig 39, no 28) appear residual, broadly Bronze Age; a little, e.g. fig 39, no 19, may be South Devon, which petrologically is indistinguishable from Scillonian granitic fabrics. Comparison of the published drawings with the Trethurgy sequence suggests that the earliest sherds are probably mid-second century AD; the settlement then continues right through the Roman to the post-Roman period.

Although the western area of Nornour continued in use during the Roman period, with some specialised, probably religious use (Butcher 2000-1), there is little contemporary

pottery. The excavator indicated a Roman date for a few illustrated pieces (e.g. Dudley 1968, fig 6, no 38, fig 7, nos 62, 66-8) but the assemblage needs modern review to establish the Roman ceramics present. Given the specialised nature of the site it is possible that the Roman ceramic suite will prove unusual for the Islands.

Two of O'Neil's unpublished hut circle sites are reported to have produced finds from the Roman period: Par Beach Site A and May's Hill, both on St Martin's (Ashbee 1974, 318, fig 34, fig 35). Thomas (1985, 183) investigated a midden producing Roman pottery and other contemporary artefacts on Tean; this remains unpublished. The midden investigated and published by Dudley at Poynter's Garden contained a few sherds of Roman-period pottery, including a flanged bowl of the late third or fourth centuries (1960-1, fig 29).

The cist-grave cemetery at Porthcressa, firmly dated to the Roman centuries by metalwork, produced two complete vessels (Ashbee 1954), one of which can now be seen as a Cordoned Ware Type D jar of the late first /early second century AD; the other, despite Ashbee's comments, has no parallel on the mainland and could well be an import from France.

Observation of the trenches dug for the supply of electricity to the off islands produced a scatter of Roman material identified to modern standards (Quinnell 1991). The gabbroic pottery is of the mainland 'standard' type typical of the Roman period (Quinnell 2004, 108). A group from Dial Rocks, Tresco, includes both gabbroic and apparent South Devon sherds. There is a scatter of Roman gabbroic sherds across the Dolphin Town area and occasional sherds from different locations in the south of Tresco. A small group with gabbroic sherds comes from Veronica Farm, Bryher, and gabbroic sherds were recorded at three locations on St Agnes. Gabbroic pottery was found at locations both at Higher Town and Lower Town, St Martin's.

Work done on the electricity supply trenches established the presence of Roman vessels made outside Cornwall and Devon (Quinnell 1991). Dorset black-burnished ware was found at two locations in Dolphin Town, Tresco, at Periglis, St Agnes, and at Churchtown, St Martin's. Greywares, currently not sourced, came from two locations in Dolphin Town and from The Town on Bryher. Oxfordshire ware came from a limpet midden west of The Town on Bryher. A piece of Spanish amphora, Dressel form 20, was recorded at Middle Town, St Agnes. A probable Roman-period Breton / Norman import was studied from Middle Town, St Agnes. A small group of samian was published from Halangy Down (Dickenson and Hartley in Ashbee 1996), a sherd comes from Hillside Farm, Bryher (Quinnell 2002-3), and another sherd from Nornour (Butcher 2000-1, 8). Two sherds of samian were found by O'Neil at the Roman-period house at May Hill, St Martin's (Ashbee 1974, 184), and 'scraps' at the unpublished midden on Tean investigated by Thomas (1985, 183). Some fine slipped ware from Halangy Down is variously described as 'Gaulish Rhenish' (Samuels 1996, 82) or 'Castor' (Ashbee 1974, 196). Overall these Roman fabrics reflect the general pattern of imports on Cornish Roman sites (Quinnell 2004, chapter 5 *passim*), although the apparent French import piece from St Agnes emphasises the potential of the location of Scilly on western sea routes for attracting occasional exotica.

The virtually complete vessel from a pit at Higher Town, St Agnes, is in a second period Cordoned ware with influences derived from samian (Quinnell, in prep e).

One final and unusual component of the Scillonian Roman period assemblage is the group of some 30 miniature vessels of gabbroic clay with simple horizontal cord impressed decoration below their rims from Roman contexts on Nornour (Butcher 2000-1). Nothing like these is known in gabbroic fabric. They appear to have related to the ritual practices at Nornour, their shape and decoration referencing the vessels of the Early Bronze Age on the Cornish mainland. M A Owoc (Owoc et al 2003; Manske *et al* nd) comments that the cord used was surprisingly uniform with differences from that found on Bronze Age ceramics.

6.5.4 Bone

From the Roman period midden at Tean there was a bone comb fragment (Thomas 1960b, 21).

6.5.5 Flint and stone

Flint and bone tools were still important in the Roman period but it is likely that iron and bronze were also used for knives, arrowheads and nails. Rotary querns (hand mills) gradually replaced earlier saddle and bowl types, making the grinding of corn more efficient (Ratcliffe and Johns 2003, 12). The local resource of cobbles and boulders for tools continued to be considerable and stone continued to have a very prominent use as mortars and saddle querns, hammerstones, etc.

6.6 Subsistence

The inhabitants of Scilly continued to practise a mixed economy, but there were a few new developments. Pigs and fowl were kept in addition to sheep, goats and cattle, and dogs and rabbits are recorded for the first time. Red deer may have died out in the second or third centuries. A few additional species of fish have also been identified: mullet, common eel, whiting and john dory. Birds of fresh or brackish water are more common: teal, long-tailed duck, scaup, common snipe, white stork, heron and possibly moorhen, swan and bittern. This may be indicative of a rising sea level creating pools behind dunes breached during severe storms, or merely dietary preferences (Ratcliffe and Johns 2003, 12).

The base of the midden at East Porth, Tean, sampled during the 1989-93 Coastal Erosion Project, dated from the third century AD (Ratcliffe and Straker 1996, 13). The only crop identified with certainty was barley, which was not referable to species. The narrow range of wild plants were probably arable weeds: wild radish, fat hen, knotgrass and vetch or tare, all of which are commonly associated with arable crops and occur in prehistoric deposits in Scilly. Romano-British animal remains from the midden include the bones of a sheep or goat, grey seal, a small range of birds and a single fish species, wrasse. There were also ox, pig and dog associated with first to fourth century AD pottery (Thomas 1985, 183).

The main food animals at Halangy Down were sheep (47%), with cattle (37%) making a substantial contribution and pig (15%) of lesser importance. There are a few cat bones from Halangy Down, probably from a single individual; 41 bones in a third century AD context (Locker 1996; Ratcliffe and Straker 1996, 36).

6.7 Transport

There is no archaeological evidence to date of any terrestrial vehicles of this period from Scilly, and no boats or ships are known, although four Roman-period ships have been found in southern Britain - Blackfriars I, New Guys House (both second century AD), Barlands Farm, the County Hall Ship (London) - and another from St Peter Port, Guernsey. The three latter examples date to the third century AD.

Although there is no British archaeological evidence for hide boats from this period, there is documentary and possible iconographic evidence for them. Pliny the Elder refers to hide boats framed with withies in connection with the tin trade (Ransley *et al* 2011).

There is a lack of Mediterranean vessels in the British archaeological record of this period, possibly accounted for, at least in part, by the trade routes being predominantly overland '*...long-distance trade between the Mediterranean region and northern Europe was conducted primarily via the inland waterways of Gaul, which were navigable along all the main axes of communication rather than open-sea voyaging around the Atlantic coast*' (Ransley *et al* 2011, 193).

This could account for the relatively sparse assemblage of Roman artefacts recovered from Scilly (excluding the material from Nornour), which are perhaps similar in character and number to those recovered from Cornwall (Thomas 1985). This does not suggest that Scilly was of any particular significance in the maritime networks of Rome.

6.8 Social relations

Scilly, then, occupied a very peripheral position in the Roman Empire, so remote that two heretic Spanish bishops were exiled there in AD 384 (Thomas 1985, 149). There is no evidence to suggest that the Islands were ever under direct rule or even formally conquered and there appears to have been little direct Roman influence on everyday life. Scilly may have been administered for Rome by its native leader(s), but even this seems improbable as, unlike Cornwall, Scilly was not a source of tin and its people were probably left largely to their own devices (Ratcliffe and Johns 2003).

6.9 Religion and ritual

There are a number of classical references which may allude to Scilly, although these need to be treated with a degree of circumspection. The early first century AD Roman writer Pomponius Mela speaks of the holy inhabitants of Sena, one of a group of islands called the Cassiterides, which, from his description of their geographical location, could be interpreted as the Isles of Scilly. On Sena he relates that there was a Gaulish oracle attended by nine virgin priestesses who were able to predict the future, cure all illnesses and controlled the elements. Miranda Green suggests that Bryher or Tresco may have been Sena (Green 1997, 103).

Further place-name evidence hints at the islands being a cult centre during the late Iron Age (water being one focus of religious practice at this time). Scilly is first mentioned as *insula sillina* by classical Roman writers of the first to third centuries AD, but the name is of native pre-Roman origin and may incorporate that of a Celtic female deity. Thomas (1985, 170-2) envisages Roman Scilly as principally a place of pilgrimage dominated by a native marine goddess. As discussed above, on current evidence the presence of some sort of shrine is the best explanation for Roman-period activity on Nornour.

During the nineteenth century a classical altar, now in Tresco Abbey Gardens, was found in a well, possibly a votive shaft, at Mount Holles, towards the bottom of Garrison Hill, St Mary's. The altar may originally have stood in a Romano-Celtic cult building or temple. It is uninscribed but has side panels bearing Mithraic-type symbols: a long shafted axe and a cleaver (Fig 6.4; Ratcliffe and Johns 2003).

The Porthcressa cist grave burial tradition continued into this period; typological dates for most of the brooches and pottery recovered from the Porthcressa cemetery are not earlier than the end of the first century AD, which led Ashbee to consider the graves to be wholly Roman in date and to surmise that 'refugees' from the Cornish mainland may have imported the cist-burial tradition to Scilly sometime after the Roman conquest (Ashbee 1979, 78; 1986, 207). However, the radiocarbon dates from the Bryher sword and mirror burial demonstrated that the tradition dates to at least the first century BC (Johns 2002-3).

Two small pits found at Higher Town, St Agnes, contained the rim of a pot and an early Roman brooch. These were evidently the result of ritual deposition and two adjacent postholes indicate that the position of the pits may have been marked by wooden posts (Taylor and Johns, in prep).

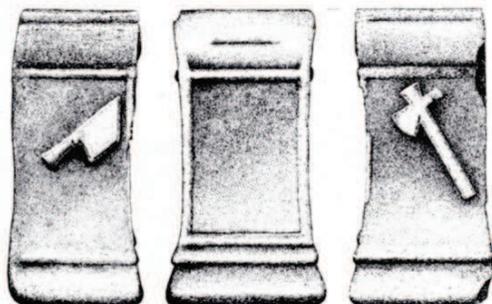


Fig 6.4 Roman altar from Mount Holles, now in Tresco Abbey Gardens (© Rosemary Robertson)

6.10 Scientific dating

6.10.1 Radiocarbon dates

The 18 radiocarbon determinations listed below in Figure 6.5 below have all been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period to which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they appear.

Lab Ref	¹⁴ C age BP	Cal AD @ 95%	Site	Context	Reference
WK-5695	1940 ±130 BP	351 cal BC - cal AD 385	Old Town Bay, St Mary's	Base of lower peat deposit. Of limited value due to high deviation?	Ratcliffe & Straker 1998
GU-5057	1980 ±80	182 cal BC- cal AD 220	Crab's Ledge, Tresco	Sample 2 from basal 10mm of exposed peat	Ratcliffe & Straker 1996, 128
BETA-301602	2000 ±30	50 cal BC - AD 60	Lower Moors St Mary's	Decayed plant material	Perez forthcoming
SUERC-32920	1980 ±30	50 cal BC-cal AD 80	Old Town Bay, St Mary's	Bulk: organic sediment including Phragmites stem & ?Monocot stem (humic acid fraction) 22-23cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-38088	1965 ±35	50 cal BC-cal AD 130	Porth Coose, St Agnes	Humic acid, 22-23cm below surface of intertidal peat	Marshall <i>et al</i> 2012
HAR-459	1840 ±70	22-378	Nornour	Charcoal from 22 samples (510 & (52) from Building 7	Butcher 1978, 29-112
GU-5056	1880 ±100	101 cal BC - AD 389	Par Beach, St Martin's	Sample 2 from top 10mm of intertidal peat. Of limited value due to high deviation?	Ratcliffe & Straker 1996, 128
SUERC-39448	19563 ±38	Cal AD 1 -n 94	Lower Moors St Mary's	Peat	Perez forthcoming

Lab Ref	¹⁴ C age BP	Cal AD @ 95%	Site	Context	Reference
GU-5231	1830 ±90	18 cal BC- AD 407	Crab's Ledge, Tresco	Column VI (top 20mm of middle peat)	Ratcliffe & Straker 1996, 128
SUERC-38089	1835 ±35	80-320	Porth Coose, St Agnes	Humin fraction, 22-23cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-39445	1762 ±38	130 - 336	Lower Moors St Mary's	Peat	Perez forthcoming
Wk-5693	1650 ±60BP	255-540	Porth Coose, St Agnes	Peat deposit	Ratcliffe <i>et al</i> , forthcoming
GU-5230	1600 ±60	264-595	Crab's Ledge, Tresco	Column VI (basal 20mm of upper peat)	Ratcliffe & Straker 1996, 128
OxA-4699	1605 ±50	337-570	East Porth, Tean	Charred seeds (<i>Hordeum sp.</i>) from lower half of midden - layer (3)	Ratcliffe & Straker 1996, 98
OxA-23862	1632 ±28	350-540	Old Town Bay, St Mary's	Bulk: mix of herbaceous & monocot stems (humic acid fraction), 4-5cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-32916	1620 ±30	380-540	Porth Coose, St Agnes	Dicot stem fragments, 1620 ±30	Marshall <i>et al</i> 2012
GU-5062	1570 ±50	394-600	Crab's Ledge, Tresco	Sample 3 from top 10mm of intertidal peat	Ratcliffe & Straker 1996, 128
SUERC-32993	1595 ±30	400-550	Crab's Ledge, Tresco	Organic sediment with ?Monocot roots (humin fraction)	Marshall <i>et al</i> 2012

Fig 6.5 List of Romano-British radiocarbon dates

6.10.2 OSL dating

Optically Stimulated Luminescence (OSL) dating was carried out on submarine and intertidal deposits recovered during the Lyonesse Project in 2009 and 2010. One 2010 sample from Bathinghouse Porth, Tresco, dates to the Late Iron Age - Roman period (Roberts 2012).

Location	Lab no.	Context	Material	OSL Age	Calibrated date (95% confidence)
Bathinghouse Porth, Tresco	184/LPTR-4A	0.19m down core	Quartz	1890 ±110 BP	110 cal BC- cal AD 340

Fig 6.6 List of Romano-British OSL Ages, expressed as years before AD 2010, rounded to the nearest 10 years

7 Early medieval (410 – 1066)

Edited by Charles Johns from contributions from Kevin Camidge, Dan Charman, Ralph Fyfe, Steve Mills, Jacqui Mulville, Paul Rainbird, Helen M Roberts and Carl Thorpe.

7.1 Introduction

In Scilly, as in Cornwall, early medieval society and settlement had its foundations in the Romano-British period, but significant changes did occur, not least the adoption of Christianity, which may have been introduced from Cornwall, Gaul or the Mediterranean. Imported pottery hints at trade with these places and also North Africa and the Occident. Excavations carried out in the mid-twentieth century at small ecclesiastical sites or hermitages are one of our main sources of knowledge for this period in Scilly's history. The main characteristics of Scilly's early medieval resource are summarised in this chapter.

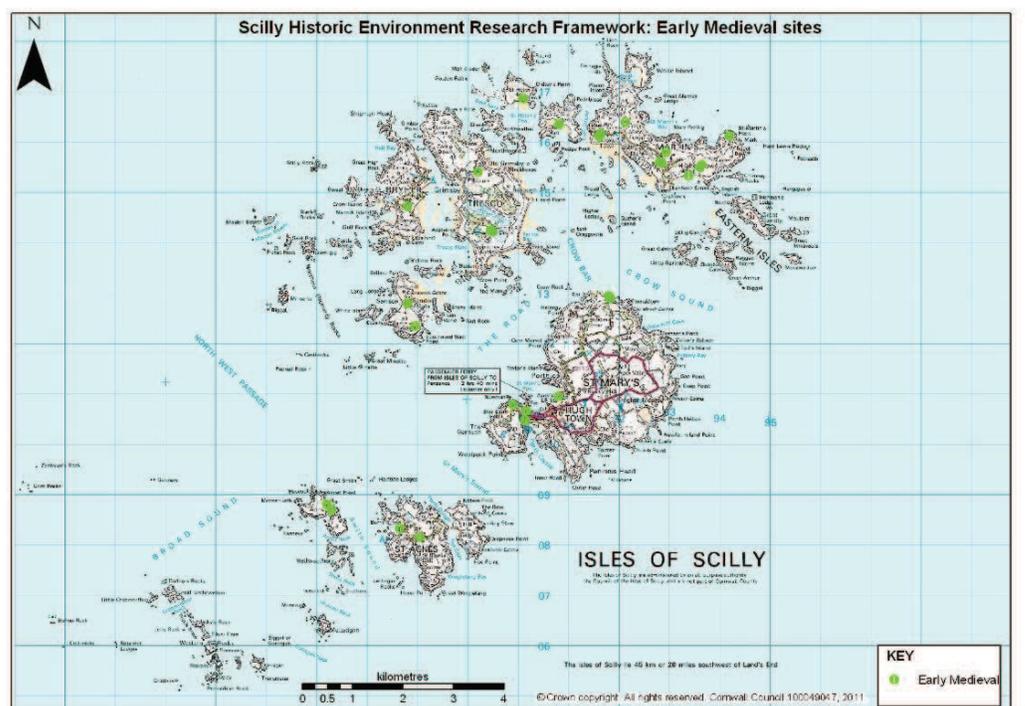


Fig 7.1 Early medieval sites recorded in the Cornwall and Scilly HER

7.2 Landscape and environmental background

Results from the Lyonesse Project indicate that by the beginning of this period the present pattern of islands had already been formed for nearly 2000 years. During this period the sheltered, low gradient areas between the islands that had been suitable for saltmarsh growth during earlier times became less and less extensive and it seems likely that they were subject to much greater erosion and retreat once an open channel north of St Mary's existed during most states of the tide. The date of this is difficult to assess with any accuracy but it probably occurred during the early medieval period as the highest part of the Crab's Ledge saltmarsh peat is dated to cal AD 969 ±294 (Charman *et al* 2012).

Pollen from Old Town Beach suggests herb-rich grassland with a background of coastal indicators; aquatic plants suggest standing water throughout the Roman and into the early medieval periods. Samples taken at Bathinghouse Porth, Tresco, indicate a saltmarsh environment at the end of the Roman and beginning of the early medieval periods; samples from Porth Coose, St Agnes show low background levels of woodland

with wet grassland with very high *Plantago* and other disturbance indicators becoming increasingly aquatic at this time (Charman *et al* 2012).

7.3 Chronology

There are 22 radiocarbon dates and two Optically Stimulated Luminescence (OSL) ages for this period, and a ceramic sequence has now been set out which will aid dating for this period (Thorpe 2011).

7.4 Settlement

The early medieval settlement pattern on Scilly is reflected by the distribution of locally-made grass-marked pottery and sherds of imported wheel-made Gaulish and Mediterranean wares; a dozen or so such sites have been identified. Where settlements have been excavated there is evidence for the continued occupation of stone houses built during the Romano-British period (and earlier). However, a few houses of early medieval date have been identified and these are rectangular, allowing for a ridge roof and an interior free of supporting posts (Ratcliffe and Johns 2003, 13).

7.5 The material world

7.5.1 Metalwork

Coins

Penhallurick (2001, 16-18) records two Byzantine coins from Scilly which he considers could be modern losses: a small module bronze *folles* from the Giant's Grave on Porth Hellick Down, probably of Anastasius (AD 491-518), and a *nummi* of Constans II (AD 641-668) from North Farm, St Martin's. The latter was found in the same field as three Roman coins (above, Section 6.5.1.2), along with a 'rose' farthing of Charles II, and he considered that 'the whole assemblage [is] suspiciously like a collection thrown out with household rubbish to manure a field.

More recently, the Portable Antiquities Scheme in Cornwall has produced a number of Late Roman and Byzantine coins. Considered with the finds of post-Roman pottery best known from Tintagel this suggests sea trade with the Eastern Mediterranean via the Straits of Gibraltar and the Bay of Biscay (Tyacke 2011, 75) and perhaps the Byzantine coins from Scilly need to be reconsidered in this light.

A possible Anglo-Saxon *sceat* was found on Peninnis Head, St Mary's, in 1995, although its identity has not been confirmed (Penhallurick 2009).

Other metal artefacts

The 1971 excavations at East Porth, Samson, recovered a variety of metal artefacts including a copper alloy buckle. A total of 80 fragments of iron were found there, the majority of which came from the levels associated with the stone house and from beach rubble, but the condition of all the metal was very poor and in many cases all that survived were lumps of iron oxide concreted to sand. Those items which could be identified included a buckle plate, two knives, a fish hook, six nails, three wire fragments, four fragments of iron sheeting, a possible ferrule, together with various other fragments (Neal forthcoming b and c).

7.5.2 Glass

The 1971 excavations at East Porth, Samson, recovered a blue glass bead (Neal, forthcoming a).

7.5.3 Pottery

As is the case with the Romano-British period (above, Section 6.5.3), previous work on early medieval period ceramics in Scilly has been hampered by reference being made to Cornish material of this date, a subject not properly understood until research recently

carried out by Henrietta Quinnell and Carl Thorpe. This knowledge has been progressed with the publication and study of several important sites, including Mawgan Porth (Bruce-Mitford 1997), Trethurgy (Quinnell 2004), Launceston Castle (Saunders 2006), Tintagel (Barrowman *et al* 2007), Boden Vean fogou (Gossip, forthcoming a), Gwithian (Nowakowski *et al* 2007), and Hay Close, Newlyn East (Jones, forthcoming).

This research has established a ceramic sequence which is set out in Thorpe (2011). This sequence was first proposed by the pioneering work of Professor Charles Thomas, who was the first to identify and classify both the native wares (Thomas 1960a; Thomas 1968) and the imported wares (Thomas 1957; 1959; 1960a; 1981); however, the recent work has been able to add to the ceramic details (forms and fabrics) and refine the dating for this material.

Native wares

In the late Roman period, between the fourth and fifth centuries AD, there was a well developed and flourishing pottery industry within Cornwall. Manufactured mostly from gabbroic clays derived from the rocks of the Lizard, the principal repertoire of forms produced was slack-profiled jars (Trethurgy Type 4), the Cornish flanged bowl (Trethurgy Type 22) and the flat grooved-rim bowl (Trethurgy Type 21), together with large storage jars both with cordons (Trethurgy Type 13) and of large cooking pot form (Trethurgy Type 16). The work at Trethurgy suggested that this suite of domestic wares continued into the fifth and possibly sixth centuries, showing that the basic patterns of cooking and eating of the Roman period endured until then (Quinnell 2004). This material has been recognised on Scilly by Henrietta Quinnell.

Unlike large parts of Britain where the use or production of ceramics declined or ceased completely in the late fifth and sixth centuries AD, in Cornwall and Scilly native pottery became more experimental and innovative and developed rapidly in many directions (Thorpe 2011). This material was first identified by Charles Thomas (Thomas 1956; 1960a) during excavations at Gwithian and was subsequently termed 'Gwithian Style' wares. Seen as a continuation of the Cornish late Roman potting tradition, forms include numerous styles of jars and bowls (sometimes flanged) with curved and everted rims, often with a concave internal rim bevel. This ware also introduced the use of low walled platters (occurring sometimes without a wall at all). These platters are a completely new form, perhaps connected to some change in the preparation and serving of food.

Gwithian Style ware is often in a highly fired, fine, well-sorted and, on Scilly, granitic fabric. (No petrographic study has been done of this material from Scilly.) This is interesting in itself in that it suggests that manufacturing in local granitic clays had recommenced, having been supplanted during the Roman period by mainland gabbroic wares (see above Section 6.5.3). Surfaces are often better finished than their Roman predecessors, sometimes wiped, and occasionally slightly burnished with some patterning in the burnish. The undersides of the bases of the vessels are often sanded, or have been sat on sand prior to firing.

The largest collection of Gwithian style material was obtained from the excavations at East Porth, Samson, in 1971 (Neal forthcoming a). Gwithian Style ware is dated to the sixth to late seventh centuries AD. This is supported by the radiocarbon (AMS) determination obtained from internal residue on a sanded platter sherd from Gwithian (Nowakowski *et al* 2007) GMI context (2210) of cal AD 550-650 (OxA-14528), and a second date from residue within a platter at Boden (Gossip, forthcoming a) of cal AD 590-670 (OxA-14560). Unfortunately no scientific dating has been obtained for the material from East Porth, although its association with imported wares (qv) points to a date probably within the seventh century.

A single stray sherd of Gwithian Style ware came from a midden exposed by rabbit burrows at Mays Hill, on Tresco (Thomas 2005). Unpublished drawings from excavations of a midden on Tean, Isles of Scilly (mostly unpublished) carried out in 1956 and 1960 (Thomas 1985) show at least two Gwithian style jars. This site is

important, though, in that these vessels have 'grass-marking' on their surfaces. A radiocarbon date of cal AD 600-774 (OxA-4695) came from the upper part of this midden (Ratcliffe and Straker 1996, 98). This is the earliest date obtained for any vessel with a grass-marked surface, and Thomas has even suggested that this innovation may have started on Scilly (Thomas 2005).

Imported wares

A feature of early medieval Scilly, reflecting the picture seen in mainland Cornwall, is its wide-ranging international contacts through trade, evidenced by the presence of imported wares within ceramic assemblages on several sites.

The first group is of imported wheel-made wares of Mediterranean origin, comprising fine red slip tableware and amphorae. The tableware consists of Phocian Red Slip Ware (PRSW) from western Turkey and African Red Slipped Ware (ARSW), produced in the Carthage region of Tunisia (Hayes 1972; Hayes 1980). Produced over a long period of time, from the fourth to seventh centuries AD, the forms changed rapidly, most likely in response to fashion, which makes them very useful for dating. Forms found in Cornwall suggest dates from c AD 450–550. Only one site in Scilly has produced these fine table wares, with a single sherd of each being identified from material recovered from the excavations at East Porth, Samson (Neal, forthcoming).

The amphorae are Class Bi (*Late Roman 2 amphora*; Peacock and Williams Form 43) from Greece (for wine and olive oil); Class Bii (*Late Roman 1 amphora*; Peacock and Williams Form 44) from Cilicia in south-east Turkey (wine and olive oil); and Class Biv Amphorae (*Late Roman 3 amphora*; Peacock and Williams Form 45) from Sardis in western Turkey (wine or fine oil). These have a long range of use, from the fifth to seventh centuries AD, but the peak period of importation and distribution within Britain appears to have been between the late fifth and mid sixth centuries AD (Thomas 1981; Fulford and Peacock 1984; Peacock and Williams 1986; Tyers 1996; Dark 2001).

A single sherd of Bi amphora (a broken disc that may have been part of an unfinished spindle whorl?) has been recovered as a surface find from Mays Hill, St Martin's (C Thorpe, pers comm). Bii amphora was found in the unpublished excavations at Tean (Thomas 1985) while a single sherd came from the excavations at East Porth, Samson (Neal, forthcoming). The excavations at Tean also produced several fragments from a single Biv amphora, while the Isles of Scilly Electrification Project recovered a single sherd from immediately south-west of St Martin's church (Ratcliffe 1991).

The second group is of imported wheel-made wares, D and E wares, which originated in what is now France (Gaul).

D wares are fine table wares, forms of which include mortaria and both thick-rimmed and fine bowls. Originating from the Bordeaux area, forms found in Britain suggest an importation date within the sixth to seventh centuries AD (Campbell 2007). A single decorated sherd of this ware (from a carinated bowl) was identified in the material from the unpublished excavation by O'Neil in 1950 on Mays Hill, St Martins (Thomas 1985).

E wares are a range of 'kitchen' wares, in a wheel-thrown, hard-fired (almost stoneware) fabric. The most recent discussion of this material has been by Campbell (2007). Although the centre of production is not known, it is most likely to have been from the Loire valley. Evidence from Whithorn suggests its date range to be from the late sixth to early eighth centuries (Hill 1998), c 575-700 (Campbell 1991; 1996; 2007). From the excavation of crannog at Loch Glashan a radiocarbon date obtained from internal residue has given a date of 605-660 at 1 σ cal AD (Crone and Campbell 2005), while the excavation at Hay Close, Newlyn East (Jones forthcoming) produced a date of 390–540 cal AD (95.4%). No scientific dates have been obtained for material from Scilly.

The largest collection of E-ware comes from the unpublished 1956 excavations on Tean (Thomas 1960b; 1985; 2005). Here over 60 sherds from a minimum of 13 vessels were collected. Although none of this material has been scientifically dated the midden was

revisited in 1996 and two charred grain samples were dated. The lower part of the midden gave a date of cal AD 270-560 (OxA-4699) while a date of cal AD 600-770 (OxA 4695) came from the upper part (Ratcliffe and Straker 1996, 98).



Fig 7.2 E ware from East Porth, Samson (photo: Carl Thorpe)

The next largest collection is from East Porth, Samson (Neal, forthcoming). Here approximately 50 sherds were recovered from a minimum of six vessels, including an unusual flagon. This material is closely associated with Gwithian style wares, imported Mediterranean ware and Grass-marked ware (qv) that suggests a date within the sixth century AD.

The excavation by O'Neil in 1950 on Mays Hill, St Martins (Thomas 1985), produced eight sherds of E-ware from four vessels (Thomas 2005), while a further three sherds including a rimsherd occurred as chance finds from further down slope from the excavated site in 2010 (C Thorpe, pers comm). Other sites that have produced E-ware are two sherds from Dolphin Town, Tresco (Taylor and Johns 2009-10), a single chance find from Dial rocks, Tresco, four sherds (3 vessels) from Hillside Farm, Bryher (Johns 2002-3) and a single sherd from Veronica farm, Bryher (Ratcliffe 1991). Two sherds (including a lid) came from excavations in 1977 at Bar Point, St Mary's (Ashbee 1978; 1996; Thomas 1981; 2005).

Sometime in the late seventh or early eighth centuries AD there appears to have been a major cultural change in both Scilly and Cornwall which saw the introduction of a new pottery production technique involving the use of chopped grass to prevent adherence to surfaces prior to firing; this left clear vegetation marks on the bases and sides of vessels. This is termed Grass-marked ware. On Scilly this ware is found in both granitic and gabbroic fabrics, suggesting that although some may have been made locally, other pieces may have been brought in from the mainland, although there is the possibility that gabbroic clay was imported to supplement the local material. No petrographic work has been done on the material from Scilly.

This ware has a limited range of forms in platters, dog dish bowls, cooking pots and bar-lug cauldrons. These mark a dramatic change in eating habits, with a turning away from the individual dining and serving sets common in the Roman period and changing to a more restrictive set of vessels that seems to reflect a more communal way of dining.

As noted above, the earliest date obtained for grass-marking as a technique (although on Gwithian Style vessels) has been obtained from the midden at Tean. This has led to the suggestion that this technique may have originated in the islands (Thomas 2005). For Grass-marked wares, from material recovered during excavations at Penhale Round on the mainland, a radiocarbon date of cal AD 540-660 (NZA-32927) derived from residue on a platter was obtained (Nowakowski and Johns, forthcoming). This is the

earliest known date for Grass-marked ware suggesting an introduction of this ware somewhere in the seventh century. The earliest date for the Grass-marked wares from Gwithian is cal AD 540-660 (SUERC-6158) with cal AD 650-780 (SUERC-6160) being the latest, indicating that adoption of the bar-lug element must certainly have been introduced prior to the end of the eighth century AD (Nowakowski *et al* 2007).

A further radiocarbon date of cal AD 856-996 was obtained from Gunwalloe where a possible new fifth vessel form has been identified (Wood 2010), while a determination from Nancemere, Truro (Wk-21361), gives a date of cal AD 1010-1160 (Gossip, forthcoming b). Two samples taken from the medieval rubbish pit found at Lower Town, St Martin's, produced dates of cal AD 1020-1270 and cal AD 968-1170, which are the latest so far recorded (Ratcliffe 1997). This corresponds nicely with dendrochronology dates of AD 1080 and AD 1155 that have been obtained in Waterford in southern Ireland (Gahan and McCutcheon 1997). Here the use of Grass-marked ware, unique to one house in the Hiberno-Norse coastal longphort, provides the first evidence of a link between Cornwall and Ireland and the exportation of this style outside Cornwall and the Isles of Scilly.

The largest collection (over 400 sherds) comes from East Porth, Samson (Neal forthcoming a). Found in both granitic and gabbroic fabrics, only cooking vessels and platters were present within this assemblage. The excavation at Tean (Thomas 1985; 2005) produced a significant collection but this contained some unusual forms, including what appear to be Gwithian Style vessels (especially jars). Platters were present. Grass-marked ware was found in a midden overlying the first-century cist grave cemetery at Porthcressa, St Mary's (Ashbee 1974). A significant collection (127 sherds) came from the excavations at Halangy Down, where the vessels included platters, cooking vessels, and bar-lug cauldrons (Ashbee 1996).

The Isles of Scilly Electrification Project recorded several sites that produced this material. The largest collection came from the vicinity of Higher Town church, St Martin's, some 32 sherds being recovered including platters, cooking vessels and bar-lug cauldrons (Ratcliffe 1991). Further material came from Lower Town, St Martin's, Dolphin Town, and the Abbey on Tresco, Southward on Bryher, and the Turks Head, Higher Town, Troytown Farm, Middle Town and from middens at Porth Killier and Periglis, all on St Agnes.

Some 22 sherds were recovered from the 2003 excavations at Dolphin Town, Tresco (Taylor and Johns 2009-10), but the only diagnostic pieces were a couple of cooking vessel rims. A single unstratified sherd was found associated with one of the settlement trenches (Trench 7) opened to investigate the environs of the Bryher Iron Age sword and mirror cist burial (Johns 2002-3).

Finally, some 55 sherds were recovered from midden material in a rubbish pit at Lower Town, St Martin's. There were a minimum of nine vessels present, all apparently cooking vessels. Limpet shells from the midden were radiocarbon dated to AD cal 656-870 (GU-3411, 1280 ±50), while sheep or goat's bone from the same midden was dated AD cal 898-1069 (OXA-4063, 995 ±55). This is an important collection, the date for which compares with the latest date of cal AD 1010-1160 for material from Nancemere on the mainland (Gossip, forthcoming b).

From the excavation at East Porth, Samson, there were some 22 sherds of unidentifiable pottery from early-medieval contexts in unknown fabrics, including some which are granitic. It could be that they are from the mainland, but it is also possible that they may be foreign imports from the continent (Neal forthcoming a).

7.5.4 Worked bone

The 1971 excavations at East Porth, Samson, recovered a decorated bone plate, a semi-circular strip of decorated bone and a cut bone, possibly a spindle whorl (Neal, forthcoming b).

7.5.5 Flint

Flints from the level associated with the timber building at East Porth, Samson, included a platform core, three end scrapers, a fabricator, and various waste flakes (Neal, forthcoming d).

7.5.6 Industry

Evidence for iron smelting in the form of slags and the remains of a possible furnace were found at East Porth, Samson (Biek, forthcoming).

7.5.7 Subsistence

As in earlier periods our knowledge of the Islands' early medieval economy comes from excavated sites and in particular middens. The assemblage recovered from the well-sealed midden investigated during BT trenching at Lower Town, St Martin's in 1992 is particularly important because animal bones of early medieval date are extremely rare in Scilly and plant macrofossils of this date had not been recovered before (Ratcliffe 1997).

Plant remains

The density of charred plant macrofossils in the Lower Town midden sample was low (5 per litre of soil), although this may not fully reflect the original contribution of plants to the diet. Cereals are represented by wheat (*Triticum* sp.) and barley (*Hordeum* sp.) and the other charred seeds (vetches, knotgrass, bedstraw and brome) could all have grown as arable weeds. With such a small assemblage it is not possible to comment on whether it represents a crop processing accident or ash from a domestic fire. All the weeds could have grown in Scilly and the crops were probably grown locally. Barley, in particular, tolerates salt spray which would have been inevitable in Scilly. The cereal grains are not well enough preserved to suggest which forms of wheat or barley might be represented, and chaff, apart from grass culm nodes, is not preserved to assist identification further. On mainland southern England, hulled six-row barley is most common in deposits of this date and free threshing wheat (rivet or bread wheat type) is also found (Ratcliffe 1997).

The early medieval part of the midden at East Porth, Tean, consisted entirely of oats but because of the lack of chaff it is unclear whether this was a crop or a weed (Ratcliffe and Straker 1996, 13).

Animal remains

Fish, seabirds and shellfish were the major constituents of the Lower Town midden, although it is likely that the plant component may be unrepresentative of what was discarded originally. Shell and animal bones are normally poorly preserved in acidic granite soils but the incorporation of calcareous sands in some coastal sediments in Cornwall and Scilly means that the soils are not acid and bone and shell, especially in the concentration found in the midden pit, do not decay. However, fragile uncharred plant tissues are only preserved where deposits have remained wet or waterlogged since they accumulated. The midden was dry and the only surviving remains of plants were occasional flecks of charcoal and a few charred seeds, meaning that the information did not reflect the probable importance of leaf, root or stem vegetables, and fruits and seeds (Ratcliffe 1997).

The small bone assemblage in the midden reflects the exploitation of marine resources, with little evidence of domesticated species. Seal (*cf* grey seal *Halichoerus grypus*), ovicaprid (*Ovis* sp. domestic/*Capra* sp. domestic), shag (*Phalacrocorax aristotelis*), razorbill (*Alca torda*), puffin (*Fratercula arctica*), black sea bream (*Spondyliosoma cantharus*), thick lipped grey mullet (*Chelon labrosus*), ballan wrasse (*Labrus bergylta*), conger eel (*Gadidae* *indet*) and two frog (*Rana* sp.) tibia shaft fragments were identified. The seal bones consisted of an immature forelimb as well as a porous tarsal from a hind limb showing knife-cuts. In the past seal was classified as fish, which

meant they could be eaten on fish days and was also put into pottages. The only bone from a domesticated animal was part of a small ovicaprid (i.e. sheep or goat) calcaneum and the shaft of a small radius (Ratcliffe 1997).

The bird species represented could all have been eaten: shag and razorbill trapped from their breeding colonies on the cliffs and puffins from their nesting colonies in burrows. The shag bones include part of a single (?) mature individual and at least five immature birds. One of the femora of the mature bird shows two knife cuts on the proximal surface. The razorbill bones are all mature, except for one porous tibiotarsus, and parts of at least three birds are present. The puffin bones are also all mature and from at least three birds. The unidentifiable vertebrae and phalanges are also likely to belong to these three species, which are known to have been exploited by island and coastal communities in the past. Puffins were also classified as fish, which meant they too could be eaten on fish days (Ratcliffe 1997).

The fish are characterised by a common habitat preference for inshore waters. Black sea bream, ballan wrasse and conger eel prefer rocky coasts, while thick lipped grey mullet, although preferring inshore waters, is also found on sandy bottoms. These could all have been caught on lines; conger eel is also caught in traps. A single gadoid vertebral fragment may be cod (*Gadus morhua*). Remains of ballan wrasse represent at least three individuals, one of which was probably about 0.6m long and the other two smaller (Ratcliffe 1997).

Limpets dominate the assemblage of marine molluscs, as might be expected. Scallops and cockles are also present as well as single examples of two other species (*Callista chione* and *Monodonta lineata*, thick top shell). Scallops, limpets and cockles would all have been collected for food and the other two species could have been gathered accidentally with them. It is not known whether they too would have been edible. It is likely that a variety of methods would have been used to collect the shellfish. The scallops and the *Callista* both occur from just below low water. Scallops inhabit water up to 100 fathoms deep, although they are most common in 10-15 fathoms (18-46m) of water, just inside or just away from areas of strong currents (Mason 1983). *Callista* occurs in up to 70 fathoms of water. The simplest way to catch scallops in shallow water is to use a hand net. However, the 'traditional' method is to use a dredge. This involves towing a metal frame with a net bag attached to it along the sea bed. Mason (1983) cites references to fore-and-aft rigged sailing vessels towing dredges in the English Channel in the 1920s, and it is possible that a simplified system was used in the medieval period. Collecting by net or dredge would inevitably mean that other shells, such as *Callista*, were gathered from time to time. In addition to these methods of capture, people could easily have dived for scallops in shallow water. Cockles can be collected from mid tide to just below low water, top shells from upper to middle shore and limpets from the upper to lower shore (Ratcliffe 1997).

As well as the marine molluscs, fragments of crab claws were retrieved from the midden sample. These consisted of seven claw tips plus other fragments and represented a minimum of one individual. The species of crab was not identified (Ratcliffe 1997).

Land snails were also found as a result of sieving the midden sample. Most of the taxa (*Cochlicopa lubrica*, *Vitrea crystallina*, and *Aegopinella nitidula*) will tolerate a range of conditions, such as woods, hedges and grasslands, although in general they prefer damp situations. *Capaea* also occurs in sand dunes and so tolerates dry conditions. *Discus rotundatus* tolerates moist sheltered places of all kinds and, with the taxa noted above, could well have lived in the pit amongst the rubbish. *Pupilla muscorum* is typical of dry calcareous places including coastal sand dunes and would have been common in Scilly. *Ceciloides acicula* is a burrowing species and may not be contemporary with the rest of the snails. It, too, is typical of calcareous soils. A context such as a midden pit is a rather artificial environment which may include a range of microhabitats suitable for different species and interpretation of precise environmental conditions is not, therefore, possible.

The upper part of the midden at East Porth, Tean, dating to the seventh and eight centuries AD, contained more fish species but less bird ones than the lower, late Roman, layers of the midden. There were also more mammals, with deer, the Scilly shrew and Pallas' vole (Ratcliffe and Straker 1996, 13).

7.6 Transport

No evidence of boats or ships of this period is known from Scilly, although the presence in Scilly of ceramics from France, North Africa and the Mediterranean attests to the existence of trade routes and therefore maritime activity, at the very least to Cornwall and possibly further afield (Johns *et al* 2004).

The most obvious feature of the Nordic tradition of boatbuilding during this period is the use of overlapping planking (clinker). This method of boat building starts with the hull planking being fastened together (usually using iron clench nails or rivets). The internal framework is added afterwards. Hence this type of construction is sometimes called "skin first". These vessels are double-ended, with overlapped split oak strakes fastened to each other with iron nails, propelled by oar and single square sail. An early example is the late sixth to early seventh century Sutton Hoo ship (McGrail 2001; Hutchinson, 1998).

7.7 Social relations

Scilly appears to have been unaffected by sporadic Anglo-Saxon conquests in East Cornwall. The story that Athelstan (King of Wessex AD 935-939) made a short visit to the islands to deal with Scandinavian raiders is probably legendary, as are connections with the mythical British king, Arthur, or Olaf Tryggvason, King of Norway, Sweden, Denmark and Iceland, who the 'Heimskringla' saga records visited Scilly at the end of a four-year long raid and was converted to Christianity there (Bowley, 1964, 34).

The excavated settlements - St Helen's, East Porth, Tean and East Porth, Samson - are all ecclesiastical sites and we have very little knowledge of secular life in Scilly during this period.

7.8 Religion and ritual

An important result of external trade or other cultural contacts was the introduction of Christianity, probably from Cornwall, France or the Mediterranean, during the late fifth or early sixth centuries.

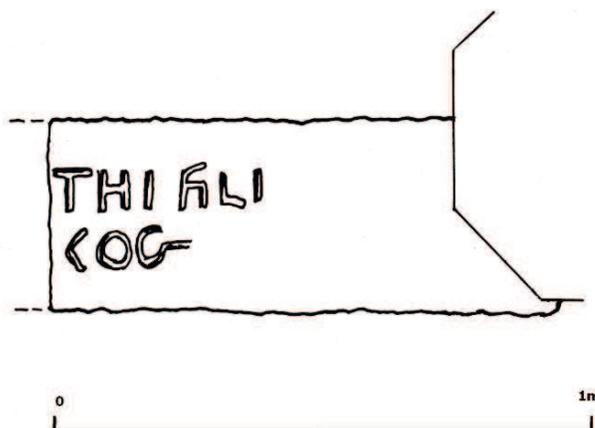


Fig 7.3 Inscribed tombstone in Tresco Abbey Gardens (after Thomas)

The earliest evidence for Christianity in the Islands is a sixth-century inscribed tombstone which has been re-used as a threshold stone in the south doorway of Tresco Abbey (Fig 7.3). Broken at some time in the past, it was originally part of an upright pillar, possibly associated with one of the stone-lined graves in the corner of the Abbey Gardens. Its surface is very worn but it is possible to discern part of Latin inscription

...THIFILI...COGI, the last element could also be interpreted as COGVI, COCI, COGNI, or COLINI (the first inscribed sideways). The inscription is a standard formula meaning 'son of' with Latinised British personal names before and after FILI (Macalister 1945, 462-4; Ratcliffe and Johns 2003, 54).

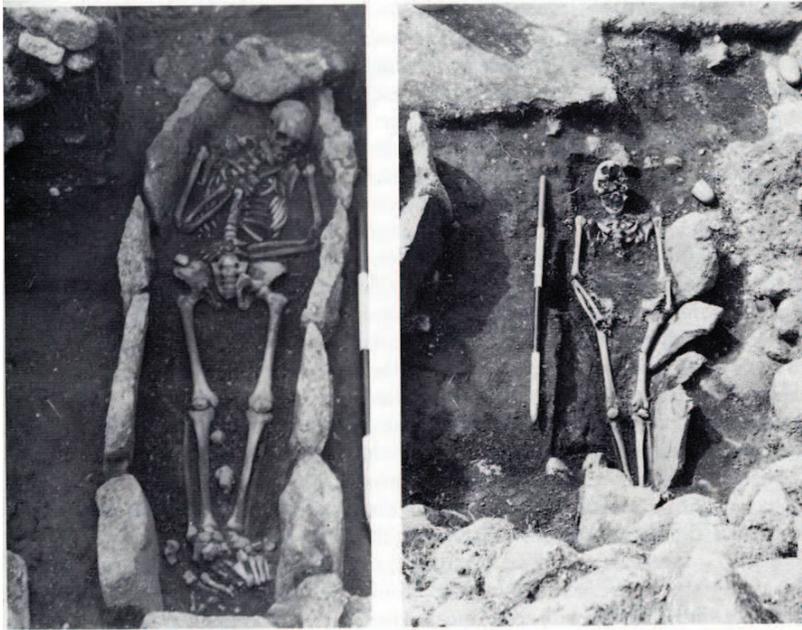


Fig 7.4 Two of the Early Christian burials from Tean (photo: Vincent Megaw)

The stone may have been associated with a nearby Early Christian cist cemetery, one of five identified in Scilly which survive below enclosed land, heathland, dune sand and existing settlements.

Although these cemeteries are superficially similar to Romano-British ones, their graves are longer, narrower and coffin-shaped, aligned roughly east-west and contain extended skeletons facing east. They are occasionally covered by simple kerbed cairns or marked by small stones, like the sub-circular slab with a simple incised cross found in one cemetery. Early medieval cemeteries or burials have been found at St Helen's, East Porth, Samson, East Porth, Tean (Fig 7.4), and in Tresco Abbey Gardens.

7.8.1 Chapels and hermitages

Associated with the graves of the dead are the places where the living worshipped, simple rectangular chapels of the eighth to tenth centuries, the remains of which are found on St Helen's, Tean, and Chapel Brow, St Martin's. Others may once have stood on St Mary's, Samson, St Agnes and Tresco, where Early Christian cemeteries have been recorded. Traditionally thought of as insular hermitages, these chapels were reinterpreted in the late 1980s as the earliest parish churches for Scilly, sited near to contemporary settlements (Ratcliffe 1989), although this interpretation was based on Thomas' model for sea level rise.

Eight sherds of early medieval pottery were found in a limpet midden east of the main entrance to the Tresco Abbey gardens (adjacent to the site of the British Airways ticket hut in existence there in 1985). These tenth to eleventh century sherds are further evidence for an early medieval establishment pre-dating the twelfth century St Nicholas' Priory. The pottery came from a limpet midden but this may not itself be of early medieval date since post-medieval sherds were also found in it.



Fig 7.5 St Helen's chapel (photo: Katharine Sawyer)

The plans of the earliest chapels and oratories in Scilly and Cornwall are consistently rectangular - 'double-square' - in plan, 4m by 2m, for example, and have doorways on the south side, not the west as in Irish foundations of the same period (Thomas 1978, 252).

The site on St Helen's was probably founded sometime during the eighth to tenth centuries by St Elidius, reputedly a British bishop and the son of a king. The earliest phase of the site on the south-facing slope of St Helen's comprised a rectangular 'Oratory' or chapel (Fig 7.5), a circular living-cell or hut and up to six Christian graves within a 0.1 hectare enclosure bounded by a rough wall (O'Neill 1964; Thomas 1985, 181).

At East Porth on the neighbouring island of Tean, a multi-period site was investigated by Thomas in 1956 and 1960 (Thomas 1960b). Finds from a hut overlying a Roman and early medieval midden were mainly pottery of fifth, sixth and probably seventh century date, including sherds of an imported Bii amphora, a Biv handled jar and nine class E-ware pots.

During or soon after the occupation of the hut, Christian-type cist-graves were constructed to the east beyond the limits of the midden. Sixteen graves were found during the two seasons of work. Overlying the graves was a small, rectangular stone structure whose internal dimensions, about 4.88m by 2.44m, east-west longer axis and remnant of a south-side doorway indicate that it was a chapel, provisionally dated to the early eighth century and founded by Saint Theona. Thomas suggests that the stone chapel could post-date an earlier wooden structure on the same site, a phenomenon noticed elsewhere in Britain and Ireland (Thomas 1985, 183-6). To the north of the chapel is small sub-circular field which may have originally been the *lann* or ecclesiastical enclosure associated with the chapel (Johns *et al* forthcoming b).

The chapel on St Martin's Head, the eastern summit of Chapel Down, St Martin's, has been mostly robbed of stone but is visible in plan at ground level as a small,

rectangular, east-west aligned structure measuring 5m by 2.4m internally, with a south doorway. It is not associated with a cemetery and it has been suggested that it was a 'lighthouse chapel', a small religious establishment whose duty it was to maintain beacon lights. At least one such chapel is known to have existed on the Land's End peninsula (Adams 1957; Thomas 1985, 186).

A multi-phase Early Christian site at East Porth, Samson was excavated in 1971 (Neal, forthcoming). The sequence of a timber structure superseded by a stone building is similar to that excavated at Tean. The east-west aligned stone building is rectangular in plan with internal measurements of 3.38m and, probably, 1.98m. The doorway is on the north side, perhaps for practical reasons - if it had been on the south side it would have faced into the dune. Consideration of the occupation debris around the house suggests it was a domestic habitation (perhaps that of a hermit) rather than a chapel. A stone bowl in the corner of the room, similar to but smaller than the stone bowl in Room 1 at Nornour, would also suggest a similar purpose (*cf* Butcher 1978, fig 40).



Fig 7.6 Possible stone font from East Porth, Samson (photo: David Neal)

The later history of the site also suggests a religious association, as demonstrated by the presence of three further graves, a wall possibly intended as a boundary to a cemetery and a massive stone basin possibly once used as a font (Fig 7.6), and perhaps originally sited within a chapel. There was no stone building associated with these features, although extending below the present dune to the south of the site are a series of timber structures and associated levels (Neal, forthcoming).

In legend, the Isles of Scilly were renowned for their hermits, as demonstrated by the story recorded in the 'Heimskringla' saga of Olaf Tryggvason and the soothsayer in the late tenth century (Fig 7.7; Bowley 1945, 34-38).

By the end of the early medieval period Christianity was firmly established in Scilly but it would have assimilated some old pagan beliefs. For example, St Warna's holy well on St Agnes is probably an early medieval structure, but the tradition of attributing supernatural powers is a survival from pagan times.



Fig 7.7 Olaf Trygvason and the soothsayer (Peter Nicolai Arbo)

7.9 Human osteoarchaeology

Early medieval human bones have been found at St Helen's (O'Neil 1964), East Porth, Samson (Keepax forthcoming), and Tean (Thomas 1960b). Of these the bones from Tean have been most extensively examined (Fig 7.4).

Sixteen graves were found on Tean, and the skeletons included one adult woman and four young children, seemingly making it a lay cemetery (Thomas 1985, 184), although the female skeleton could have been of a nun or perhaps St Theona herself, so this is not necessarily the right explanation. Two of the male burials were those of lepers, and the disease is likely to have been contracted in a Mediterranean or Middle Eastern land (Thomas 1985, 198; Brothwell 1961, 323-4, pl VI). Another of the skeletons showed healed amputations of the left hand and right foot, possibly the result of a punishment (Mays 1996, 109).

The bones from St Helen's were very friable and only the remains in the altar grave in the chapel were examined. The grave contained two burials placed side by side. One was an adult male, not less than 40-45 years old, with a powerful musculature and a full set of healthy teeth but with severe functional crown attrition. The fragments of the second skeleton, which was probably also male, were excessively decayed and friable but showed similar functional crown attrition. The skeletons probably dated to the early years of the Christian era (O'Neil 1964, 68).

Fragments of the vertebrae, sacrum, pelvis, femora and skull of an adult male were present in grave III at East Porth, Samson. The preservation of the bones was poor, with some surface erosion (particularly of the skull). Two loose teeth were present showing a medium amount of wear with some exposure of the dentine but no evidence of caries or calculus deposits. The lower incisor showed very slight hypoplasia of the enamel. The sacro-iliac joint showed roughening and lipping, probably due to a medium degree of osteo-arthritis. The severity of this condition suggests that the individual was probably over thirty years old at the time of death. The skull showed evidence of possible ante-mortem injury, a deep cut mark, although there was no evidence of fracturing of the bone associated with the injury and the cut did not seem to have penetrated to the interior of the skull. This injury is comparable to that which

might be caused by a blow from a sharp object and it occurred probably only a short time before death (Keepax, forthcoming).

7.10 Discussion

Islands appear to have been sought after for specific purposes among the adherents to the new Christian Church. The early Christian *mentalité*, closely aligned with the long held beliefs of the natives, found powerful magico-religious associations with places on the fringe of the Christian world. In a number of publications Tom O'Loughlin (1997; 1999; 2000) has explored the attraction of the islands on the fringe of the world known to early Christianity. O'Loughlin makes a distinction between the known seas of the Mediterranean, where familiar islands were located, and the sea surrounding the continents, which was the *Oceanus*, a threatening place where the tides mimicked the breathing of a living animal, possibly the primeval 'abyss', a threatening place to be treated with caution. The ocean could be full of demons, and in this it was not unlike the desert spaces of the known world. Monks and hermits were attracted to these places as it was seen as their duty to do battle with the demons. An earlier use of deserts for this purpose appears to have been translated to the ocean in the west. So the ocean as a metaphorical desert hangs strongly in allusions to the monastic heritage of ascetic isolation derived from the Egyptian desert, the inversion of the island/land and sea/water dichotomy is found in the oasis/water and desert/land model, water and sand providing the conditions for otherness and evil.

The unknown spaces of the ocean also provided mappers of the world with conceptual spaces in to which they could place known but unlocated places. So, for example, the Garden of Eden was located on an island in the *Oceanus*, as were other 'promised lands'. According to O'Loughlin (1999) this is part of the point of the, for him, allegorical tale provided by the voyage of St Brendan, who on a seven-year voyage battles demons and finds marvellous islands. At this date, in the early medieval period of western Europe, it is clear that islands and headlands on the larger islands of the Atlantic Archipelago were being sought out in 'pursuit of a desert' (Dumville 2002). In considering the community of monks residing in the island monastery of Iona, O'Loughlin (1997) notes that they had found their desert fastness, as imagined, but also finds in *Vita Columbae* (The Life of St. Columba) that the monastery was spread over a number of islands, that boat trips were regularly taken between them and indeed much further asea, with craft going to and arriving from the mainland, Skye, the Orkney Islands, Ireland and France, achieved by rowing and sailing. So, although Horn, White Marshall and Rourke (1990, 3) find that '*it is among the stone ruins left on the Atlantic islands by small colonists of Irish monks that we find the boldest parallels to early Egyptian monasticism in Europe*', it is also the case that the established monasteries on such islands were connected to distant places, and ultimately to Rome and Jerusalem.

Clearly then for a thousand years prior to the fifteenth century islands were regarded as suitable locations for ascetics in monasteries and hermitages. Metaphorical deserts were also provided by forests, deep valleys and mountain peaks; islands then did not have a monopoly on use for this purpose, but Scilly does appear to have been sought out for this purpose (Thomas 1985, Chapter 7), and, perhaps paradoxically, provides an indication of widespread off-island contacts at this time.

7.11 Scientific dating

7.11.1 Radiocarbon dates

The 22 radiocarbon determinations listed below in Figure 7.8 have all been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period to which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they appear.

Lab Ref	¹⁴ C age BP	Cal AD @ 95%	Site	Context	Reference
Wk-5693	1650 ±60BP	255-540	Porth Coose, St Agnes	Peat deposit	Ratcliffe <i>et al</i> , forthcoming
GU-5230 (CALIB 4.1)	1600 ±60	264-595	Crab's Ledge, Tresco	Column VI (basal 20mm of upper peat)	Ratcliffe & Straker 1996, 128
OxA-4699	1605 ±50	337-570	East Porth, Tean	Charred seeds (<i>Hordeum sp.</i>) from lower half of midden - layer (3)	Ratcliffe & Straker 1996, 98
OxA-23862	1632 ±28	350-540	Old Town Bay, St Mary's	Bulk: mix of herbaceous and Monocot stems (humic acid fraction) 4-5cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-32916	1620 ±30	380-540	Porth Coose, St Agnes	Dicot stem fragments, 8cm below surface of intertidal peat	Marshall <i>et al</i> 2012
GU-5062 (CALIB 4.1)	1570 ±50	394-600	Crab's Ledge, Tresco	Sample 3 from top 10mm of intertidal peat	Ratcliffe & Straker 1996, 128
SUERC-32993	1595 ±30	400-550	Crab's Ledge, Tresco	Bulk: organic sediment with ?Monocot roots (humic fraction)	Marshall <i>et al</i> 2012
GU-5058 (CALIB 4.1)	1480 ±80	407-676	Crab's Ledge, Tresco	Sample 2 from basal 10mm of exposed peat	Ratcliffe & Straker 1996, 128
OxA-23860	1507 ±29	440-620	Porth Coose, St Agnes	Plant fragment: Monocot stem, 4cm below surface of intertidal peat	Marshall <i>et al</i> 2012
Wk-5694	1510 ±50BP	432-639	Porth Coose, St Agnes	Peat deposit	Ratcliffe <i>et al</i> forthcoming
Wk-5696	1490 ±60	432-651	Old Town Bay, St Mary's	Top of lower peat deposit	Ratcliffe and Straker 1998
OxA-23827	1469 ±25	540-650	Old Town Bay, St Mary's	Bulk: mix of herbaceous and Monocot stems (humic fraction) 4-5cm below surface of intertidal peat	Marshall <i>et al</i> 2012
SUERC-39444	1437 ±38	560-658	Lower Moors, St Mary's	Peat	Perez forthcoming
SUERC-39447	1378 ±36	598-689	Lower Moors, St Mary's	Peat	Perez forthcoming
SUERC-32927	1390 ±30	600-670	Crab's Ledge, Tresco	Bulk: organic sediment with ?Monocot roots (humic acid fraction)	Marshall <i>et al</i> 2012

Lab Ref	¹⁴ C age BP	Cal AD @ 95%	Site	Context	Reference
OxA-4698 (CALIB 4.1)	1355 ±50	600-774	East Porth, Tean	Charred seeds (<i>Aveda sp.</i>) from upper half of midden – layer (3)	Ratcliffe & Straker 1996, 98
GU-3411	1280 ±50	656-870	Lower Town, St Martin's	Limpet shells from midden	Ratcliffe 1997
GU-2569	1030 ±50	892-1153	Big Pool, St Agnes	Lower band of peat & organic sediment	Scourse 1986
?	998 ±57	896-1170	Old Town Bay, St Mary's	Upper peat deposit	Ratcliffe & Straker 1998
OxA-4063	995 ±55	898-1169	Lower Town, St Martin's	Ovicaprid bone from midden	Ratcliffe 1997
SUERC-39443	996 ±35	982-1056	Lower Moors, St Mary's	Peat	Perez forthcoming
GU-3412	880±50	1034-1252	Lower Town, St Martin's	Human bone from burial	Ratcliffe & Straker 1996

Fig 7.8 List of early medieval radiocarbon dates

7.11.2 OSL ages

Optically Stimulated Luminescence (OSL) dating was carried out on submarine and intertidal deposits recovered during the Lyonesse Project in 2009 and 2010. Samples from Old Town Bay, St Mary's and Bathinghouse Porth, Tresco date to the early medieval period (Roberts 2012).

Location	Lab no.	Context	Material	OSL Age	Calibrated date (95% confidence)
Old Town Beach, St Mary's	184/LPOT-1A	0.15 ±0.01m below surface of intertidal peat	Quartz	1400 ±90	AD 430-790
Bathinghouse Porth, Tresco	184/LPTR-4B	8.5-9.5cm below surface of inte-tidal peat	Quartz	1380 ±110	AD 520-740

Fig 7.9 List of OSL Ages expressed as years before AD 2010, rounded to the nearest 10 years

8 Medieval (1066 – 1547)

Edited by Charles Johns with contributions from John Allan, Eric Berry, Kevin Camidge, Dan Charman, Ralph Fyfe, Jacqui Mulville, Marta Perez, Fraser Sturt and Sue Watts.

8.1 Introduction

During the medieval period the administration of Scilly was split between Tavistock Abbey which presided over the northern islands, and secular proprietors of St Mary's and St Agnes. Piracy and shipwreck are recurring themes throughout the period. Medieval remains include St Nicholas Priory church on Tresco, the second phase of the ecclesiastical complex on St Helen's and Ennor castle on St Mary's. The main characteristics of Scilly's medieval resource are summarised in this chapter.

8.2 Landscape and environmental background

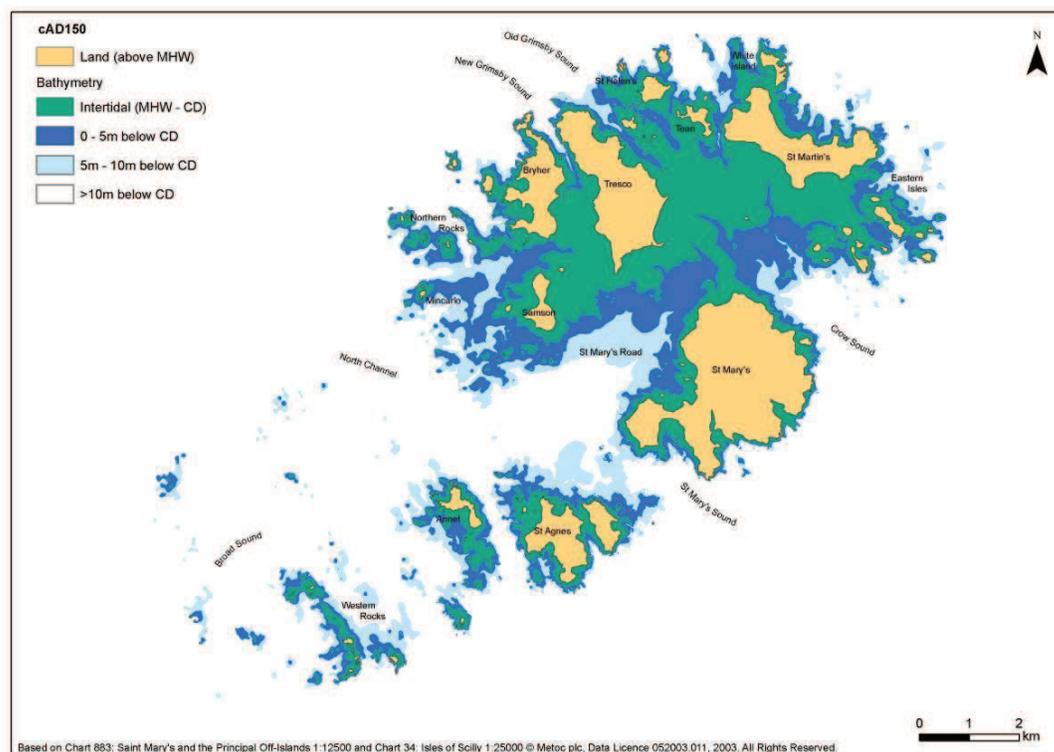


Fig 8.1 Inferred submergence model c1066 based on data from the Lyonesse Project (Charman *et al* 2012)

The Isles of Scilly were often regarded vaguely as one island during the Middle Ages (Orme 2010, 266), and according to Thomas (1985) model for sea level rise the northern islands were still joined at low water until the early Tudor period. However, as discussed above, the results of the Lyonesse Project indicate that separation of the islands had occurred by the end of the Early Bronze Age (Charman *et al* 2012). Two charters dating to between 1140 and 1175 refer to the islands of *Rentemen* (possibly Tresco and Bryher, still connected at low tide), *Nurcho* (possibly St Martin's), *St Elede* (St Helen's), *Sampson* and *Tean* (Orme 2010, 266), indicating that the present pattern of islands had indeed largely formed by that time. Further work is required to reconcile Thomas' coastal place-name evidence with new environmental data.

There is comparatively little environmental data from this period. A peat deposit at Old Town Bay, St Mary's sampled during coast protection works in 1997 which suggests

herb rich grassland with background of coastal indicators and aquatic plants indicating standing water (Ratcliffe and Straker 1998).

8.3 Chronology

There are only five radiocarbon dates for medieval Scilly (Fig 8.19). However documentary sources do provide a chronological framework for the period. These include the thirteenth century *Orkneyinga Saga*, the annals of Tavistock Abbey and various pipe rolls and charters.

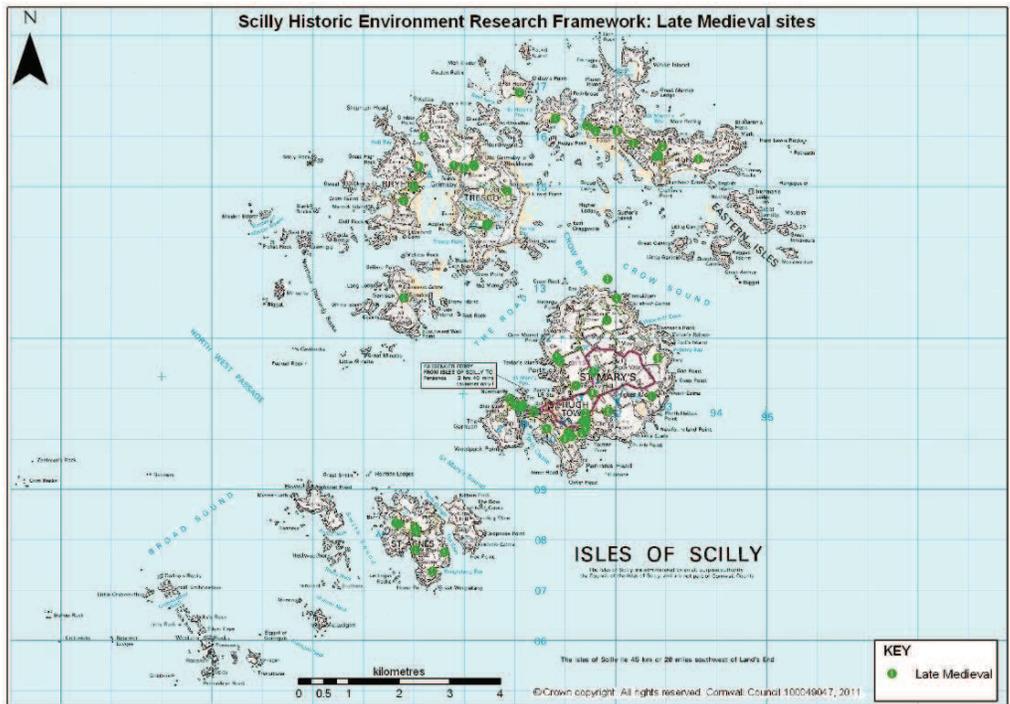


Fig 8.2 Distribution of medieval sites recorded in the Cornwall and Scilly HER

8.4 The material world

8.4.1 Settlement

The main settlement on St Mary's, known in the medieval period as *Ennor*, was at Old Town, where secular rule was based. Protected by a castle, first mentioned in 1244, and not visible from the open sea, the village was at the end of a bay that deep-water ships could not penetrate. The harbour, with its medieval quay (Fig 8.3) was then known as *Porthenor*, 'the porth or landing-place for Ennor', and possibly the settlement of *Maríuhöfn* plundered by Vikings in c1151 (Thomas 1985, 210).

Though Old Town (described by Leland in c1542 as a '*poore Town*') was the main settlement in the Islands, the location of others is revealed by documentary and place-name evidence and medieval pottery scatters: Churchtown and Lower Town on St Martin's; Old Grimsby, Borough and Dolphin Town on Tresco (as well as around the priory and New Grimsby, which is of later medieval origin); Norrard and Southard on Bryher; Periglis and Middle Town on St Agnes; Trenoweth, Helvear, Holy Vale, Normandy and probably most of the other existing farms on St Mary's (Chope 1918, 23; Ratcliffe 1995, 6).

Examples of medieval strip fields are rare in Scilly - the best being that south of the road at Lower Town, St Martin's clearly shown on the 1888 OS map but since subdivided for flower cultivation. The generally more irregular pattern of most anciently

enclosed land indicates that there was no large scale laying out of medieval strip fields, but instead existing field systems continued to be used and modified. It is tempting on the basis of this and artefactual evidence to push the origin of most modern settlements back into pre-medieval times, perhaps as far back as the Iron Age. The sinuous character of many of the roads and trackways connecting these settlements suggests that they too have an ancient origin, having been laid out during medieval (or earlier) times (Ratcliffe 1995, 6).



Fig 8.3 The medieval quay at Old Town (photo: Cornwall Council)

The hermitage on St Helen's is the only medieval site to have been excavated in Scilly (O'Neil 1964), so we do not have clear understanding of the character of medieval settlement in the Islands. Large quantities of finds were recovered during the 1985 off islands electrification project watching brief and the possible location of the medieval settlements of *Sturtom* and *Bantom* identified on Bryher (Ratcliffe 1991). Detailed evaluation on the site of the new Five Islands School Base at Carn Gwaval, St Mary's, between Ennor Castle and Old Town Church, did not reveal any evidence for medieval occupation other than a few fragments of pottery (Johns *et al* 2010).

8.4.2 Subsistence

The midden deposit in the rubbish pit at Lower Town, St Martin's is discussed above (section 7.5.6). Sheep or goat's bone from the same midden was dated AD cal 898-1069 (OXA-4063, 995±55) and is probably indicative of the level of subsistence at the beginning of the medieval period.

Rabbits were probably introduced to Scilly early in the twelfth century and by the middle of the century Richard de Wika was obliged to grant tithes on rabbits captured in Scilly (Thomas 1985, 201). Another document of the same time refers to the gifts of areas of ground for turf cutting from peat beds for winter fuel (*ibid*, 202).

Leland, c 1542, noted that it was a "*The Ground of this Isle [St Mary's] berith exceedingly good Corn, insomuch that, if a Man do but cast corn wher Hogges have rotid it wyl cum up*" (Chope 1918, 23).

8.4.3 Artefacts

Metal

Coins

A Richard II penny from hut 1 on St Helen's, struck before 1387 (Rigold 1964). A French gold coin in good condition was found on the beach to the west of Innisidgen in 2002. The coin has been identified as an *ecu a la couronne* from the reign of Charles VI (1380-1422) and was minted in Paris (Cornwall and Scilly HER).

Bronze

A buckle-plate with traces of gilding, a fragment of gilded, thin bronze band, a bolt of a small barrel padlock and the rim of a cauldron from St Helen's (Dunning 1964). The rim of a bronze cauldron, probably twelfth century in date, was found near Old Town and acquired by the Isles of Scilly museum in May 1975 (Cornwall and Scilly HER).

Copper

A copper pilgrim's medallion with rampant lion relief, with traces of gilt on the upper portion and blue enamel around the line, possibly from Ennor Castle, held at the RCM.

Iron

The rim of a cauldron from St Helen's (Dunning 1964).

Lead

A net sinker for use in fishing and part of a window light with a fragment of glass adhering from St Helen's (Dunning 1964).

Ceramics

In considering the overall state of ceramic research in this period, reference is made in this assessment to the *South-West Archaeological Research Framework* (Webster (ed) 2008). The Medieval Pottery Research Group's report *Research Framework for Post-Roman Ceramics* (2011), presented on-line at <<http://mprgframework.info/>>, was in the course of publication as the present document was prepared; it was examined by John Allan in draft form prior to final publication.

This assessment is based on a review of all the published and grey literature relating to the medieval and later pottery of Scilly by John Allan, followed by an attempt to examine all the ceramics of this date from the islands which were accessible at the time of writing. It has entailed rapid re-examination of all the material in the Isles of Scilly Museum (IOSM), the Royal Cornwall Museum, Truro (RCM), and at the offices of Historic Environment, Cornwall Council, the first repository holding most of the material. Although an effort was made to view ceramics from wrecks and one private collection of such material was visited, coverage of this important resource is inevitably very patchy.

The medieval and post-medieval ceramics of Scilly have attracted far less study and publication than the islands' collections of prehistoric, Roman and early post-Roman pottery. In this regard the situation on the islands mirrors that throughout the rest of Cornwall, where only a handful of substantial reports have been published on the medieval pottery of the county in the last 30 years, and even less work has taken place on the county's post-medieval pottery in the same period. It would perhaps be unfair to describe the state of study throughout most of Cornwall as retarded, but appreciably less work has been carried out on later medieval and post-medieval pottery in this area than in most other parts of southern England. This situation does not arise from wilful neglect of the later archaeology of the islands but does reflect the distinctive emphasis of archaeological work in the county, with a strong research interest in prehistoric and Early Christian archaeology, alongside restricted opportunities for the kind of work, such as large-scale investigation of urban sites, which provides the best sequences and largest collections of medieval and later finds in many parts of the British Isles.

For the medieval period the best individual site collection remains that from St Helen's, excavated as long ago as 1956 and 1958, published by Dunning (1965) and now stored and displayed at IOSM. This material has not been quantified but the collection is not large; it amounts to about three standard boxfuls of sherds. Naturally, Cornish coarsewares form the bulk of the collection, but there is a range of regional imports from Poole Harbour (Dorset sand-tempered jugs), Bristol (Ham Green) and east Devon/south Somerset (redware jugs), alongside about 30–35 sherds of jugs imported from the Saintonge (the English imports not identified in the initial report; for these identifications see Allan 1993).

The collection from King Charles Castle (Miles and Saunders 1970) contains Portuguese coarseware and an important group of maiolica tiles from Seville in arista technique (probably reused monastic spoil of the 1520s) alongside a range of Cornish and North Devon coarsewares.

Elsewhere, the largest body of medieval ceramics is that from the archaeological watching brief during 1985 Electrification Programme, which recovered 421 medieval sherds from at least 285 vessels, found at a surprisingly wide scatter of sites on St Mary's, Tresco, St Martin's, Bryher and St Agnes (Allan 1993). The third collection of any size is that from Dolphin Town, Tresco, studied by Thorpe (2004). Further miscellaneous collections, often unstratified and scrappy, continue to accumulate through watching briefs and casual finds.

Ceramics associated with possible shipwrecks are described below in section 8.5.1.

Bone

A whalebone tool from St Helen's, possibly used as ploughshare (Dunning *et al* 1964).

Stone

A fragment of the gable end of a shrine or font in Purbeck marble from St Helen's. There are two fragments of Purbeck marble built into the wall at Tresco Abbey with similar moulded ornament of flutings and a third fragment, but with slightly different moulding and on a smaller scale, was recorded lying loose on the table tomb in the centre of the ruined abbey nave. That this material was being imported and used for decorative purposes on more than one site in Scilly is of interest as it can be closely dated to the twelfth century (Dunning *et al* 1964).

Also a whetstone from St Helen's (Dunning *et al* 1964). The HER records various other finds of granite and other stone objects and masonry.

Querns continued to be used to grind corn throughout the medieval period. A rotary quernstone was, for example, found during excavation of St. Helens, covering a drain (O'Neil 1964).

Roofing slate

Quantities of fragments of roofing slates were found at St Helen's. They were of varying shades of grey-blue-green and typical of the Delabole quarries on the north coast of Cornwall.

Ridge tiles

Fragments of ridge tiles were found scattered on the slates at St Helen's and probably date to the thirteenth or fourteenth centuries (Dunning 1964).

Plaster

The plaster covering the wall of the east end of the chapel on St Helen's was extremely hard and pure white in colour with straw-like matrix (Dunning 1964).

8.5 Communications, transport and trade

8.5.1 Shipping

The three main medieval ship types were keels, hulcs and cogs (Hutchinson 1998; McGrail 2001). Evidence for the monks being involved in long distance trade is provided by a reference in the *Orkneyinga Saga* (compiled around 1200) to the plundering of one of their merchant ships. Split dried fish and seabirds from the Islands may have been exchanged for Cornish pottery, tin, slate and cloth; Breton salt, linen and canvas; Irish cloaks and wood; French wine and pottery; and Spanish wine and fruit. Pottery was also imported from other parts of southern England; Dorset, Wiltshire, Bristol and Exeter. The priory may have collected tolls for anchorage in St Helen's Pool, probably the chief harbour in medieval times (Ratcliffe and Johns 2003, 15).

In Scilly, the Right of Wreck, taken as vested in the Crown in the first place, passed to Tavistock Abbey in 1114. Pirates and raiders preying on English merchantmen may have been part of the reason behind Henry I's grant, and the monk, Tuold, was instructed to 'keep a firm peace'. At a later date, between 1140 and 1175, Reginald, earl of Cornwall confirmed the charter with the amendment '*All the wrecks, except whale and a whole ship*' (Larn 1993, 10). This was a valuable and often much wrangled-over commodity which would only have any value if wreck was a reasonably common event.

A return of Edward I's Commissioners of 1275 for the Hundred of Penwith (which included Scilly) stated 'They [the jury] say that John de Allet and the Prior of St Nicholas, Lords of Scilly, take wreck from the sea in those Islands, but they know not by what Environmental background warrant, the ancestors of the aforesaid John and the Prior having done so from the time whereof memory is not'.

By the end of the thirteenth century the monks of Tavistock were interested in withdrawing from Scilly if they could do so with advantage. They petitioned the king saying that they had little power to cope with felonious mariners in times of war and suggested exchanging heir lands in Scilly with him for an annual endowment of £60. They pointed out that the Islands had an anchorage for 1000 ships and were frequented by vessels from France, Normandy, Spain and Gascony. The king ordered an enquiry but nothing resulted (Orme 2010, 268).

In 1302, Edward I challenged the Tavistock abbot's right to wreck but the abbot claimed 'the ship-wrecks happening in all the Islands', which he and all his predecessors had 'enjoyed without interruption from time immemorial', except for whales, gold, scarlet cloth, masts and firs, which were reserved for the king (Bowley 1990, 28).

In this period, for the first time, we have evidence of specific shipwrecks in Scilly, the first in 1305 when William le Poer, the king's coroner of the Isles of Scilly, was imprisoned and held to ransom after going to Tresco to take charge of wreck cargo. Several other wrecks are recorded throughout the fourteenth century (Bowley 1968; Johns *et al* 2004) attesting to the fact that shipwreck was not unknown in Scilly. To date, however, no medieval wreck remains have been located in Scilly.

In 1337 the Right of Wreck in Scilly reverted to the crown, when Edward III endowed his son, Edward, the Black Prince, with the Duchy of Cornwall. Between 1342 and 1345 the cargo and materials of three wrecked vessels was plundered by Scillonians, but no other details survive and it is thought that ships of the period were not identified by names anyway, a custom which did not prevail until the fifteenth century (Larn 1999, 8; Larn 2003, 11).

The presence of medieval pottery in Tresco Channel (between Tresco and Bryher) has been known for some time (e.g. Johns *et al* 2004). It was investigated by the Archaeological Diving Unit (ADU) in 2002 but more recently a fine collection of imported pottery in unusually fresh condition – principally Saintonge green-glazed jugs but also

including North French (probably Normandy) red-painted wares and some English wares – was newly reported. John Allan has inspected the entire collection recovered by April 2011. This is a find of great importance, since it seems almost certain that it represents a wreck site, with the possibility of recovering organic finds alongside a fine ceramics collection, and of throwing light on the French trade (?wine trade) into Britain. The ceramics can be dated c 1250–1350 and possibly more closely to c 1300.

The possibility should be considered that another wreck is represented by the small collection of barnacle-encrusted Saintonge pottery from the beach at Porthcressa, St Mary's, now held at IOSM (IOSM 1927). This includes a fine example of Saintonge polychrome pottery and a rare Saintonge horn (as discussed in Le Patourel 1992), both datable to c 1280–1330.

The only comparable find to these two discoveries from the English Channel known to John Allan is the St Peter Port wreck, studied by Duncan Brown and Robert Thomson, which likewise contained Saintonge wares including polychrome sherds and was thought to indicate a ship involved in the Bordeaux wine trade. This possibly betokens direct maritime trade with France rather than transshipment via Cornwall and is worthy of further investigation. Pottery is one of the few trade items which survive well in archaeological contexts. It is probable that it arrived as part of other, more perishable cargos. For instance in the medieval period wine is an important trade item, but other items such as pottery could have accompanied it. Only small quantities of wine were produced in England and wine was imported, principally from Bordeaux. It was a high status commodity mainly consumed by the church and nobility. The measure of a ship's capacity was in fact derived from the number of standard Bordeaux wine tuns (c252 gallons) which a ship could carry (Ransley *et al* 2011).

8.5.2 Pirates and lawlessness

Maritime activity could bring problems as well as benefits; there are a number of recorded instances of this in Scilly during the medieval period. The Orkneyinga Saga records how another Viking, Thorbjorn Clerk 'won a great victory and a massive share of plunder' by attacking the island of St Mary's, *Maríuhöfn*, in 1151 (Orme 2010, 268). Scilly was called *Syllingar* by the Norse. Some annals of Tavistock abbey record the decapitation of 112 pirates on the Island of St Nicholas in 1209 (*ibid*). A complaint during the reign of Edward III (1327-1377) that a number of Ralph Vyvyan's 'born serfs' had taken refuge in Scilly suggests that a degree of lawlessness may have existed (or have been perceived to exist). More seriously for the inhabitants, 'In 1342 six-hundred Welshmen .. were drawn by the sea on to that island staying there for 20 days and carrying away £500 worth of crops'. These Welshmen were apparently on their way to Brittany on the king's service when becalmed in Scilly. Pirates, apparently also a problem, were responsible for the 'impoverishment occasioned to the Abbey of Tavistock' in Scilly in 1351.

In 1461 Tavistock Abbey and Sir John Colshill, the lay lord of the Islands, appealed to the pope for support. On 10 July of that year Pius II issued a papal bull setting out the grounds for their appeal. Pirates had assaulted, killed, captured, and held to ransom the people of the Islands; clergy, laity, fishermen, pilgrims and shipwrecked mariners. They had plundered and destroyed churches, houses and other buildings, and taken ecclesiastical goods and produce belonging to the abbey and the lay lord. Services were being disrupted, including worship, sacraments, and hospitality to the poor and sick. The evildoers seem to have been identified as men of South West England and Brittany and the pope forbade such activities and granted a large indulgence of seven years and seven Lents to pilgrims visiting the chapel of St Elide (on St Helen's). This chapel, the pope observed, belonged to Tavistock and was governed by monks but its buildings, books and ornaments had much deteriorated. The indulgence was given to all who gave alms to the chapel, or who visited it at Christmas, Midsummer or the feast-day of St Elide (8 August). When William Worcester visited Tavistock in 1478 he learned that Scilly lay under the power or supervision of Pope Pius 2010, 268).

8.6 Social life

Shortly after the Norman Conquest the islands became the property of the Crown of England, and from 1141, part of the Earldom then, after 1337, the Duchy of Cornwall. From the twelfth century the administration of Scilly was divided with Tavistock Abbey presiding over the northern part whilst the de Wika family of Week St Mary in north Cornwall were the proprietors of what are now St Mary's and St Agnes. In 1248 Dreux de Barrantine was sent to Scilly by Henry III to act as Governor and administer justice (Bowley 1964, 40; Land Use Consultants 1996, 23).

At the end of the twelfth century the population of Scilly may have been about 300, and for most of those life would have been harsh and insecure even if there were improvements of a sort and the population underwent a gradual increase from the beginning of the fourteenth century (Thomas 1985, 219). We know little about the day to day life of ordinary people in medieval Scilly.

During the last decade of the thirteenth century the civil administration of the Islands passed to the Blanchminsters, an important family holding estates in Yorkshire and Cornwall, and in 1306 Ralph Blanchminster became the first of his family to hold the Captaincy of Silly. He held the Ennor castle on St Mary's in return for maintaining twelve men-at-arms for keeping the peace. As tenant-in-chief he paid a yearly tribute to the king of three hundred puffins or 6s 8d - puffins, considered fish rather than fowl, could be eaten during Lent, and their feathers were also valuable, but money seems always to have been paid. The islands under civil administration, together with the Ennor castle were valued at £19 a year. From the Blanchminsters administration of the islands of St Mary's and St Agnes passed to the Tresillians, Coleshills, and Arundells. In the fourteenth century St Agnes was held by the Hamely family for a considerable period of time. In 1505 John Croker, husband of Anne Arundell, was the 'tenant-in-chief of the Castle and Manor of Scilly' (Matthews 1960, 10; Bowley 1964, 43).

The traditional punishment for wrongdoers in medieval Scilly appears to have been marooning. A document of 1284 records '*John de Allet and Isabella, his wife, hold the Isles of Scilly and hold there all kinds of pleas of the crown throughout their jurisdiction and make indictments of felonies. When anyone attainted of any felony, he ought to be taken to a certain rock in the sea [the Bishop Rock], with two barley loaves and one pitcher of water upon the same rock, they leave the same felon until by the flowing of the sea he is swallowed up*' (in Bowley 1964, 43).

Records dating to 1302 also refer to a crime and punishment relating to three women from Trenoweth on St Mary's 'The jurors present that a certain Muriel de Trenywith and Joan and Margery her daughters in the time of John de Allet, lord of the island who died, were indicted of theft and were immediately taken and led to the rock in the sea which is called Maenenescop [Bishop Rock] and there by the judgement of the aforesaid john they were left until drowned by the tide. The chattels of the aforesaid Muriel come to 6s 10½d for which the sheriff answers (in Stanbrook 2010, 8).

For a time the Islands may have provided refuge for runaway serfs as is shown in this document of 1354 '*Edward the [Black] Prince, etc to Walter Hull, Constable of the Castle and Keeper of the Isles of Scilly: At the suggestion of our well-beloved Ralph Vyvyan, one of our tenants in Cornwall, we command you that whereas Robert Martyn, Roger Tregarn, Robert Carngonel, and other his born serfs have run away out of his seignory in Cornwall as far as the said Isles and now remain there. We command that if it be so, you permit that he take them again, and cause them to return to his seignory as Law and Right require, and do not make any disturbance or maintenance by them against him in this matter to his disinheritance. Done by our Privy seal a London, the 4th February, 27 Edward III'* (in Bowley 1964, 40).

In about 1478 the antiquary William Worcester noted the names of two islands, St Mary and Tresco stating that both belonged to Tavistock and that the latter was uncultivated (Orme 2010). In 1484 it seems the Islands were worth forty shillings in time of peace but in time of war nothing (Bowley 1964, 43).

In 1501 Tavistock Abbey leased 'the isles, churches, and chapels of Scilly, with all their tithings, oblations, fruits, and emoluments, concerning and pertaining there to us by the priory of Scilly', to William Trewynnard and his son James for a period of seven years at an annual rent of £3 13s 4d, five dozen puffins, and a seal (Orme 2010, 269).

8.7 Religion and ritual

From the eleventh century there appears to have been a general revival in Christianity in Scilly, which increased under Tavistock's influence; existing establishments were improved and new ones built, for example, on St Helen's, and at Old Town, St Mary's. By 1461, St Helen's church was in a state of disrepair and, like St Nicholas' Priory (hardly mentioned in documentary sources after the fifteenth century); it may have become ruined before the Reformation. The priory does not even feature in a list of Tavistock's possessions drawn up at that time (Ratcliffe 1995).

8.7.1 St Nicholas Priory

On 13 September 1114 King Henry I granted 'all the churches of Scilly with their appurtenances' to Tavistock abbey, to be held 'just as well as ever monks and hermits held them in the time of King Edward [the Confessor] and Burgald, bishop of Cornwall'. The grant was made to Osbert, abbot of Tavistock, and to Turolde his monk, and included the order that Turolde and 'all the monks of Scilly' should enjoy the king's peace. This points to the existence of a small monastic community by this date with Turolde as its head. The priory is likely to have been a new enterprise founded in or shortly before 1114 (Orme 2010, 266; contra Thomas 1985, 200-1). As prior, Turolde would have been one of only two or three brethren, with servants living nearby and farming the adjoining land.

The island of Tresco where the church was sited was also known as the island of St Nicholas in the medieval period, after the dedication of the church. The church must have existed there by the early twelfth century and appears to have been substantially rebuilt in the early fourteenth century (Orme 2010, 266-7).

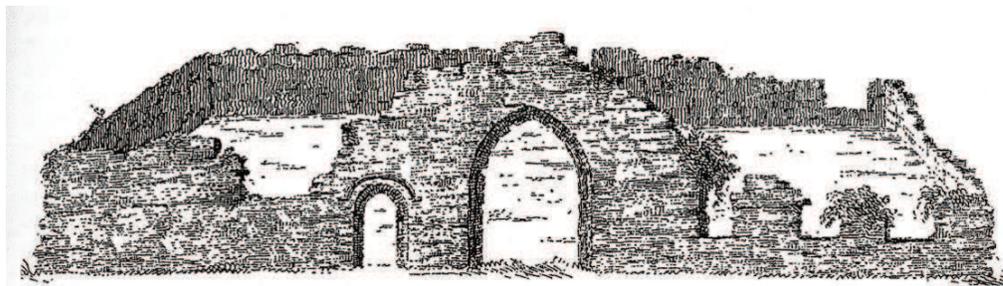


Fig 8.4 William Borlase's drawing of the ruins of St Nicholas

The remains of the priory are recorded on the 1886 OS map as 'St Nicholas's Abbey (remains of)' and on the 1963 OS map as 'Remains of St Nicholas's Abbey (Benedictine Cell)'. O'Neil notes that there are some remains of this monastery in the gardens of the present Tresco Abbey (the nineteenth century residence of the Dorrien-Smith family). The outline of nave and chancel may be traced although much of the present visible walling is due to modern rebuilding. In the south wall there are two fine arches, perhaps partly rebuilt, which seem to have led, respectively, east to the south transept of the church, and west into the north walk of the cloister. The remaining building is a Listed Building, Grade II and a Scheduled Monument; it is 25m long on its east-west axis and 8m wide. At the point where it incorporates the two arches the wall is 4.5m high; elsewhere it is about 2.5m high, and abutted by raised and other flower beds internally and externally. There is a third, blocked, doorway in the centre of the north wall; and opposing blocked windows at the east end of the building. The interior was modified by use as a graveyard in the eighteenth and nineteenth centuries and subsequently as a walled garden (Ratcliffe 1993).

Elsewhere, built into a wall, is part of an early font, decorated with round-arched arcading. A plan and elevation of the priory church remains were made by Borlase in 1756 (Fig 8.4). A field survey was made by the Cornwall Archaeological Unit in 1991 (Ratcliffe 1993).

Priors of Scilly

Tuold	Occurs 13 September 1114
Hugh	Occurs 1161x1184
Alan	Vacated by 8 June 1233
John Chubbe	Vacated 1262
John (of Yalmeton?)	Occurs 1305
Robert Deneys	Occurs 4 January 1331
John Duraunte	Replaced 28 September 1373
Richard Auncell	Appointed 28 September 1373; occurs 11 October 1375; vacated by 7 December 1385
John Denyngton	Occurs 23 March 1443
Richard Salter	Appointed 28 October 1452

Fig 8.5 Priors of Scilly (from Orme 2010)

8.7.2 Churches and chapels

St Mary's

The present church at Old Town is a restored fragment of the original Norman nave, divided from a side chapel by a round headed arch (Pevsner 1970, 209). Sedding (1909, 167) describes the arch as dating to c 1150, and Thomas (1985, 212-3) suggests an original building period for the church of 1130 to 1140, when it acted as equivalent of a parish church for the lay populace of Ennor. According to Laws (1980, 5), the church had become ruinous by the 1820s, was rebuilt in the 1830s, and was again restored by the end of the century (1890). In the east wall, above the granite altar is a three light window of good stained glass depicting the crucifixion with Our Lady and St John, which probably belongs to the last restoration. On the apex of the east gable of the church is one of the crosses which may have marked the limit of the glebe in the Norman period.

Thomas (1985, 213) quotes a twelfth century (probably 1176) charter from Bishop Bartholomew of Exeter to the prior and monks of Scilly. This condemns the fact that Richard de Wika had built a chapel within the parish of St Mary's (Old Town) church and a certain priest had dared to celebrate divine offices in it. The offending chapel was presumably closed and the priest removed. Thomas says we have no idea where it stood but guesses that it was on the Old Town side of the inlet.

Thomas (1985, 215-7) also identified the almost certain site of St Maudut's chapel on the south side of 'The Bank' in Hugh Town. There are two fourteenth century references to it (in Thomas 1977, Thomas 1985, 215-7; Doble 1938, 15) and a 1712 reference (CRO DDGO/643) to a 'Papist house' which could be the same building described by Troutbeck (1796). The former chapel described by him had mullioned windows and a burial ground on its south side. He also mentions a cross base. Whitfield (1852, 210) was shown the site (at the foot of Garrison Hill) and met the mason who had pulled down the building, which had 'a doorway, with a fine pointed arch' and mullioned windows. Thomas (1985, 215-7) depicts a rectangular building with a west or south doorway, perhaps fourteenth century in date, which may have been built on open ground or replaced a pre-Norman chapel attached to a burial ground. He plots the location of 11 pieces of masonry, in Hugh Town and on the Garrison, which may have

come from St Maudut's chapel, including three stones in the Parade, one at Porthcressa, and two opposite the Atlantic Hotel. Part of a re-used mullioned window discovered recently on the Garrison may have come from this site originally (Fig 8.6).

St Helen's

On St Helen's a larger church was built south of the old oratory/chapel at the beginning of the eleventh century and when Tavistock abbey took over the ecclesiastical administration of Scilly it was extended by the rebuilding of its east end and the addition of a northern aisle (Fig 8.6). At the same time the circular living cell was refurbished, three rectangular rooms built and the walled enclosure remodelled. The church had fallen into disrepair by the fifteenth century and was probably in ruins by the time of the reformation. When recorded by Borlase in 1752 the church still stood to roof height (Borlase 1756) but the walls were tumbled and low when excavated in the 1950s (O'Neil 1964).



Fig 8.6 Borlase's drawing of the arches between the south and north aisles in St Helen's Church

Entered through its small twelfth century porch the church's nave has at its east end a sanctuary step and the foundations of a stone altar, which supported a small consecrated super-altar. Stone benches originally ran around much of the nave and the north aisle which also had a raised east end where the side altar stood. The fragment of Purbeck marble indicates either a font or a shrine housed St Elidius' exhumed remains. For several hundred years after his death pilgrims came to revere his holy remains and today the Anglican Church on Scilly holds a service on the site on his feast day (8 August).

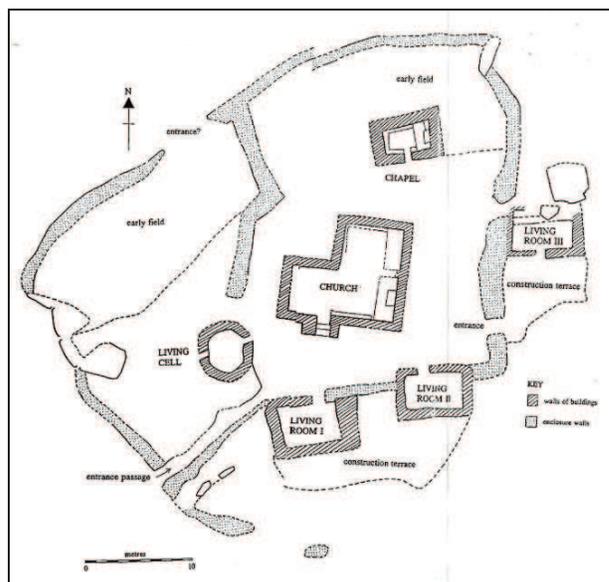


Fig 8.7 Plan of the St Helen's ecclesiastical complex from the 1993 CAU survey

The building walls were constructed almost entirely of undressed granite with dressed masonry (granite and imported freestone) used only for architectural detail in the twelfth century church. The church, the refurbished circular cell and two of the rooms were roofed with slate. Borlase's drawings show the nave and aisle divided by two low arches (Fig 8.6). Dressed stone from these was found during the excavation together with pieces of stone window and a fragment of leaded window light with painted glass attached. The remains of a splayed window can be seen in the aisle's east wall and the position of three others are shown on a plan drawn by Borlase. The site was cleared scrub and surveyed by the Cornwall Archaeological Unit in 1993 (Fig 8.7; Ratcliffe 1994).

St Agnes

Leland, c 1542, noted that "*St Agnes Isle [is] so caullid of a Chapel therin*" (Chope 1918, 24). The 1652 Parliamentary survey noted that 'Bernard Hicks' house at 'Port Eagles' or 'Egles Port' (Periglis) was in part "anciently a chappell" while his garden "hath been and is ye burying place" (Pounds (ed) 1984, II). Presumably this was the medieval chapel and cemetery dedicated in honour of the local saint who it is suggested was 'Arana' and not 'Warna' as it later became (Thomas 1977). There is a local tradition that the original burial place of St Agnes was in this area south west of the lifeboat slip and skulls and other bones and a grave have been seen by inhabitants in this vicinity. The Cornwall and Scilly HER records that Mr L Hicks of the lighthouse, St Agnes, thought that the ruined buildings south of the slipway probably incorporated the footings or remains of Bernard Hicks' house, and that there are surface irregularities nearby in the OS field no 6929, which may represent wall lines of early buildings.

St Martin's

The 'lighthouse chapel' on St Martin's Head continued in use through the medieval period and is shown on Captain Greenville Collins' navigation chart of the Isles of Scilly surveyed between 1691 and 1698 (UKHO B888).

The island name St Martin's is at least as old as 1500 and Thomas (1985, 223) thinks there must have been a church on the island which gave rise to this name. Davis's map of 1585 shows a symbol which appears to represent an ecclesiastical site, on the northern tip of St Martin's but Thomas implies that this location is a mistake, and that the symbol actually indicates a church or chapel pre-dating Ekins' 1763 church at Higher Town (*ibid*, 244). The existence of an earlier ecclesiastical site here is corroborated by the presence of an earlier cemetery, and the possible medieval cross base. A papal bull of 1193 mentions "churches" on Scilly owned by the Abbey of Tavistock. Thomas suggests that St Martin's "is the most likely for a second ecclesia", the other being on St Mary's (*ibid*, 226-7). Also, finds of green-glazed and bar-lug pottery from St Martin's suggest that 'the whole south west facing inward crescent of St Martin's contains some lost focus of settlement from medieval times... and our legitimate inference can be that the small population possessed a Christian burial ground (where the present church stands), a chapel ascribed to St Martin, sufficient religious standing for this to represent an ecclesia in the 1193 bull, and subsequently to lend its patronal name three centuries afterwards to the whole of the isle' (*ibid*, 227).

Tean

Although there is little archaeological trace the chapel on Tean may still have had some sporadic use until about 1120 because the saint's name was still being cited (Thomas 1985, 202).

Samson

There was possibly a chapel on Samson, separate to the early medieval features excavated at East Porth in 1971, although this is speculative (Thomas 1985, 202).

8.8 Human osteological remains

A shallow grave containing an articulated human skeleton was found during BT trenching at Lower Town, St Martin's in September 1992 (Ratcliffe 1997). The grave was located beneath the surface of the road, 1.3km from the present graveyard on St Martin's and the bones were unusually well preserved given the normally high acidity of soils in Scilly.

The Lower Town skeleton had received a Christian burial since it was lying in an extended position and was orientated east to west with the head at the west. Certain characteristics hinted that it may have been buried during the Early Christian period - namely burial without a coffin, the placing of the hands together over the pelvis and the shape of the grave which was very shallow and narrow.

Approximately 60% of the skeleton survived although most of the torso was absent. Of the bones present, the right hand limb bones were in a better state of preservation than those on the left. The remains were those of a male who was probably about 1.72m (5 feet 6½ inches) in height and 33 to 45 years old at the time of death (estimated from the degree of dental attrition). The only pathological evidence that could be identified was dental hypoplasia, a structural defect resulting from environmental or dietary factors during the development of the tooth (Ratcliffe 1997).

Radiocarbon dating of the skeleton revealed that burial had occurred between 1034 and 1252 (GU 3142, 880±50). The crudeness of the Lower Town grave may be evidence for it not being part of a cemetery, but a solitary grave deliberately located away from the island's main burial ground. This may have occurred if the dead man was not local but, for example, a drowned shipwreck victim, or if his family could not afford to have him buried in the graveyard (Ratcliffe 1997).

8.9 Defence and warfare



Fig 8.9 Ennor Castle (photo: Cornwall Council)

The principal stronghold of medieval Scilly was the small shell keep castle known as Ennor, or Old Town, Castle which occupies a small but prominent knoll on the east side of the broad Lower Moors valley behind Old Town Bay on the south coast of St Mary's (Fig 8.8). The earliest reference to Ennor Castle is in a deed of AD 1244 and by 1306 the castle was held by Ranulf de Blanchminster held the castle. A royal licence to crenellate the castle was granted to Ranulf in 1315 but in 1337, the castle along with the rest of Scilly was included in the lands of the newly created Duchy of Cornwall.

Leland, c 1542, noted that it was a "meately [moderately] strong Pile, but the Roue of the Buildings in it be sore defaced and worn" (Chope 1918, 23).

The castle was superseded by Star Castle as the main fortification of Scilly and is traditionally thought to have been a source of stone for the new fort and for other buildings in Old Town and Hugh Town. ennor castle is on private land and now overgrown with mesembryanthemum, the flowers brightening up the outcrop in summer.

Modern housing in Hugh Town covers a hillock (Mount Holles) on which a medieval keep may have stood.

8.10 Scientific dating

8.10.1 Radiocarbon dates

The five radiocarbon determinations listed below in Figure 8.9 below have been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they appear.

Lab Ref	¹⁴ C age BP	Cal AD	Site	Context	Reference
GU-2569	1030±50	892-1153	Big Pool, St Agnes	Lower band of peat and organic sediment	Scourse 1986
?	998±57	896-1170	Old Town Bay, St martin's	Upper peat deposit	Ratcliffe & Straker 1998
OxA-4063	995±55	898-1169	Lower Town, St Martin's	Ovicaprid bone from midden	Ratcliffe 1997
GU-3412	880±50	1034-1252	Lower Town, St Martin's	Human bone from burial	Ratcliffe & Straker 1996
SUERC-39452	689 ±38	1291-1320	Lower Moors, St Mary's	Peat	Perez forthcoming

Fig 8.9 List of medieval radiocarbon dates

8.10.2 OSL dating

Optically Stimulated Luminescence (OSL) dating on submarine and intertidal deposits recovered during the Lyonesse Project has not produced any medieval OSL ages (Roberts in Charman *et al* 2012).

9 Post-medieval and modern (1547-present)

Edited by Charles Johns from contributions by John Allan, Eric Berry, Eleanor Breen, Allan Brodie, Kevin Camidge, Tom Greeves, Graeme Kirkham, Richard Larn, Rachel Leung, Robert Platts, Fraser Sturt, and Sue Watts

9.1 Introduction

The main characteristics of Scilly's post-medieval and modern resource are summarised in this chapter. The discovery of the New World increased the strategic importance of Scilly and from the mid-sixteenth century central government exerted much greater influence on the Islands as it became increasingly involved with matters such as defence that had previously been dealt with locally. Their situation as the western most anchorage and the first/last landfall of the South Western approaches has not only physically shaped the Isles, but also the nature of their archaeological record. This record holds significance in its own right, as well as playing a part in nationally and internationally significant stories of colonisation, travel, trade and conflict.

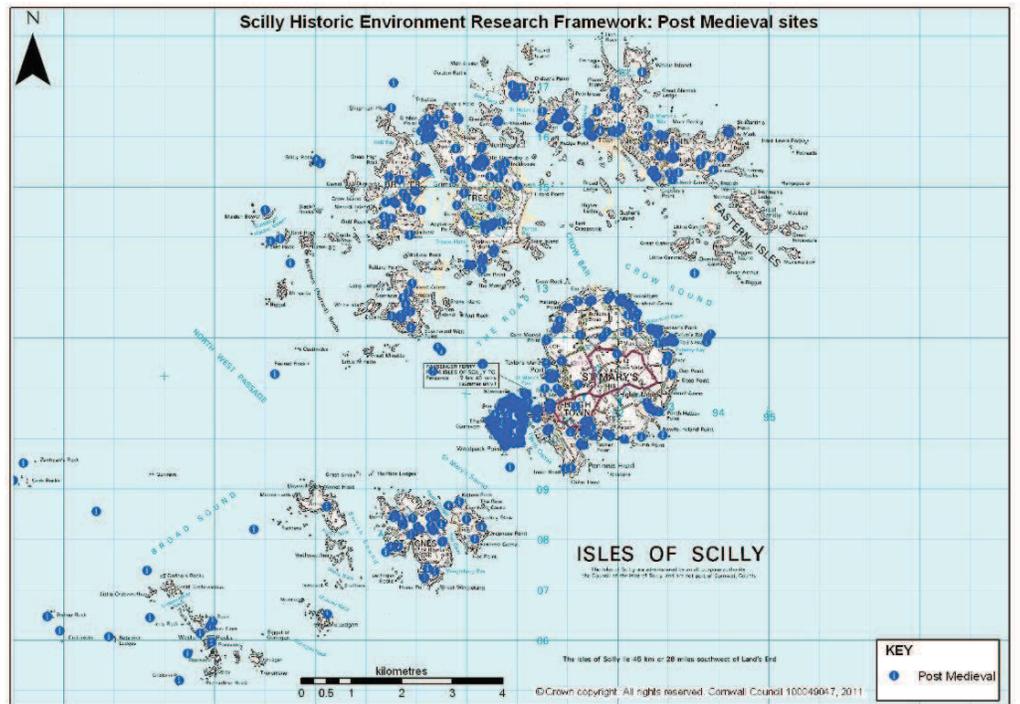


Fig 9.1 Post-medieval sites recorded in the Cornwall and Scilly HER

9.2 Environment and landscape

The three historical events which are likely to have had the most impact on the pattern of the farming landscape during the post-medieval period are the leasing of the Islands by Francis Godolphin in 1570 and by Augustus Smith in 1834 and the start of the Scillonian flower industry during the late nineteenth century (see below section 9.9.6). Godolphin is known to have encouraged Cornish people to settle in Scilly, particularly on St Martin's, and this may have involved the laying out of new field systems or reorganisation of existing ones, but it is not clear yet whether this influence can be detected in the present field pattern, and it is possible that the new immigrants merely brought previously abandoned fields back into use (Ratcliffe 1995, 7).

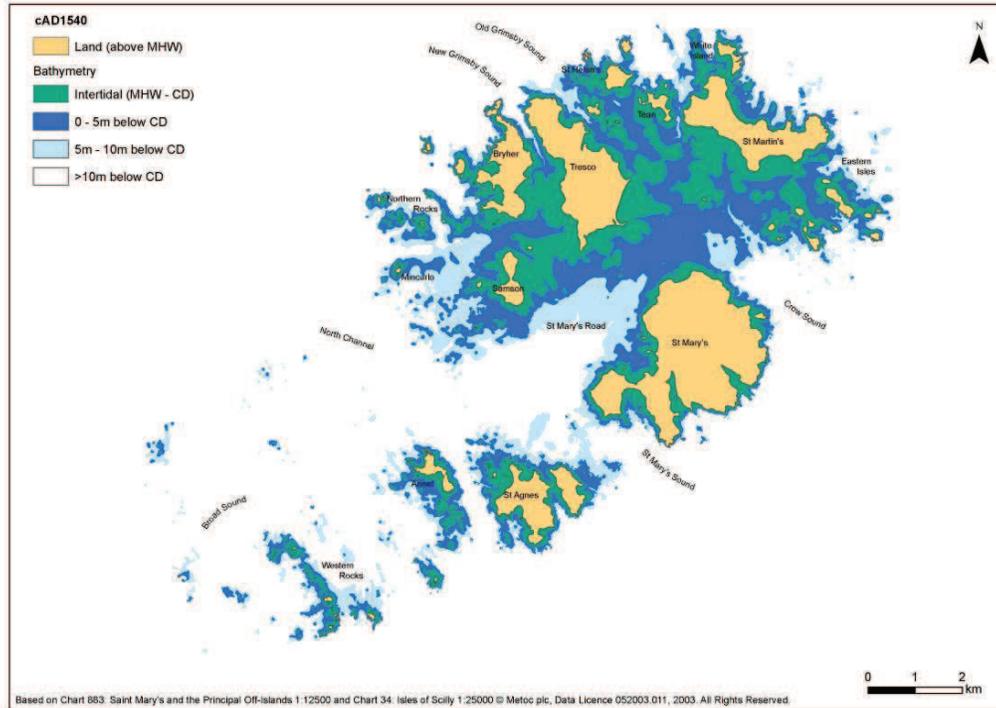


Fig 9.2 Inferred submergence model c1540 based on data from the Lyonesse Project (Charman et al 2012)

Augustus Smith was an economic reformer who began his term as landlord by reallocating farm holdings, which had become minute and scattered by subdivision, and introduced a system of inheritance by which land passed only to the eldest son, all other offspring being forced to find alternative employment. This reallocation need not have led to alteration of the existing field pattern. However, given that the aim was to maximise on agricultural yields, it is likely that the straight sided enclosures shown on the 1888 OS map represent new enclosure of areas of heathland and the remodelling of anciently enclosed land during the second half of the nineteenth century. The large enclosure on South Hill, Samson, is definitely of this date, being an abortive attempt by Smith to create a deerpark (Ratcliffe 1995, 7-8).

From the Iron Age to the mid-nineteenth century Scilly remained a treeless environment (with the exception perhaps of a few orchards and elm groves). However, in the last one hundred and fifty years pines and elms have been planted as windbreaks within and along the edges of the enclosed farmland (particularly on St Mary's and Tresco). Rhododendrons, eucalyptus, sycamores and evergreen oaks have also been planted on Tresco, mainly on former heathland as shelter and cover for game birds. Together with the hedges planted along the side of bulb fields (tamarisk, pittosporum, escallonia, euonymus) which have in places been allowed to grow to treelike proportions, this nineteenth and twentieth century tree planting has led to Scilly having a more wooded appearance today than it has had at any other time during the last three thousand years (Ratcliffe 1995, 9).

Field boundaries are a characteristic feature of Scilly's farmed landscape. As well as having landscape value the boundaries are of historic importance, both for showing how the landscape has changed and developed and for their archaeological potential; some have prehistoric origins. The islands' walling techniques are distinct from those of the mainland and in some respects differ from island to island, although there are broad similarities in the suite of

boundary types. Some field systems are in disrepair. With the progressive loss of traditional dry-stone walling skills, some field boundaries are losing their traditional character.

The 1996 Historic Landscape Assessment (Land Use Consultants) identified four historic landscape types in Scilly: **Anciently Enclosed Land** (AEL) this is land enclosed prior to the nineteenth century, which includes field systems which are as early as the Bronze Age in origin or, theoretically, as late as the eighteenth century; **Late Post-medieval Enclosures**, (LPE) These are straight-sided enclosures, usually square or rectangular in shape, but occasionally other less regular shapes. They are probably of nineteenth century date and are the result either of the remodelling of AEL or new enclosure of what was previously heathland; Late nineteenth/twentieth century **Bulb Strips**, these are small narrow enclosures designed for the cultivation of flowers (daffodils and narcissi). Comparison of the 1888 and 1908 OS 25" maps indicates that most of these strips were created during this 20 year period (with only a relatively few being laid out before 1888 or after 1908); **Modern Enclosures**; these are enclosures not shown on the 1908 OS map but which appear on the 1980 map or were recorded during the fieldwork.

9.3 Material culture

9.3.1 Ceramics

The methodology for the post-medieval ceramics resource assessment was the same as that for the medieval resource assessment (see above section 8.4.3). The only additional significant omission from the assessment has been failure to re-examine the collection from King Charles's Castle, Tresco, believed to be in an English Heritage store but not accessible at the time of writing.

The period 1500–1650

From the period 1500–1650 the single informative collection is that from King Charles Castle, published by Miles and Saunders (1970). It is an interesting reflection of the limited progress which has taken place in the subsequent period of more than 40 years that this remains the most important single report on the early modern pottery of Cornwall. Alongside a range of Cornish and North Devon coarsewares, the collection contains Portuguese coarseware and an important group of maiolica tiles from Seville in arista technique (probably reused monastic spoil of the 1520s).

The period after 1650

From the late seventeenth century onwards there is a steep increase in the volume of ceramics on the islands. In part this reflects the general rise in the islands' population (about 650 in 1650, 1960 in 1799, about 2000–2500 in the nineteenth century) but a more important factor is probably the marked increase in the volume of ceramics used at every social level. Nearly all the material of this date is held at IOSM. Some of it comes from unsystematic private excavation (such as the collections from sites around the Garrison, which include some fine examples of late seventeenth century North Devon sgraffito, alongside imported wares.

Material of this date is also a regular feature of beachcombers' collections. It would be easy to dismiss their finds as unstratified collections of little archaeological value, and it may indeed prove impossible to extract much information from the many collections of post-1750 industrial earthenwares and stonewares, but it is unwise to presume this is always the case. Some beachcombers' finds are certainly of considerable interest; the instance of the medieval Saintonge pottery from Porthcressa has been mentioned above, and other casual finds include unusual imports.

Significant gaps in current knowledge

Much basic work is needed to develop understanding of both the medieval and the post-medieval pottery of Cornwall, which forms the bulk of the Scilly collections.

To allow satisfactory reporting, the pottery of the different Cornish kilns needs to be characterised. At present vague terms like 'Cornish coarseware' are commonly used to express the wide range of possible identifications represented in sherd collections. Ten different Cornish potting centres are known from seventeenth and eighteenth century documentary evidence (Douch 1969). Kiln waste has been excavated for three of these – in two cases more than 40 years ago. In no case has a report appeared. Basic petrological description is needed to aid researchers in establishing the differences between the kilns. The validity of some of the terms in regular use when describing Cornish pottery, such as 'Sandy Lane ware' or 'Stuffle ware', needs exploration by petrological or chemical analyses. No fabric series for Cornish coarsewares exists.

Mason's excavation and publication of the early nineteenth century (c 1820–50) pottery from a cottage on Samson – the kind of study commonly undertaken on sites of this date in North America and Australia but uncommon in Britain (Mason 1984) – illustrates the point that, when stratified or related to a specific context, the industrial ceramics from the islands need not be dismissed as material of little consequence: they are capable of yielding worthwhile information about the material culture of the islands.

9.3.2 Other artefacts

Clay pipes

Clay pipe fragments are common finds, usually dating from the seventeenth to late nineteenth centuries and concentrated around area of modern settlement (Ratcliffe 1991, 107-114). Ten clay pipe fragments, probably dating to c1820-1840 were found in the post-medieval midden on Samson outside of House A, most if not all were of West Country origin (Evans in Mason 1984, 68, fig 11).

Coins and tokens

Recorded finds include a Charles I Rose Farthing from a field at North Farm, St Martin's, an Irish Charles II halfpenny minted in 1680 found in a midden at the entrance to Breakaway, St Martin's, a George III penny dating to 1819 from Myrtle Cottage, St Agnes, a Portuguese 10 Reis of Maria and Peter III (?1791) from a field north west of Old Grimsby, Tresco, and an eighteenth century gaming token found on Higher Town Beach, St Martin's (Ratcliffe 1991, 115).

Metalwork

Metalwork recovered from the Samson buildings in 2006/7 includes many iron nails, iron bolts, an iron door hinge, an iron ring door knocker, part of Cornish shovel, a nineteenth century clasp knife with a bone handle (Johns *et al* forthcoming a).

Buttons

Buttons are frequent finds and include three nineteenth century decorated military buttons found during the off islands Electrification Project (Ratcliffe 1991, 115). Three late eighteenth or early nineteenth century civilian brass buttons and an officers coatee button were found in the midden outside House A on Samson, as well as 38 bone buttons and five shell buttons (Mason 1984, 66-7).

Glass seals

A sixteenth or seventeenth century Spanish or Portuguese intaglio double seal made of purplish glass was found a Cove Vean, St Agnes (Ratcliffe 1991, 115).

Glass

Bottle glass is occurs frequently (Ratcliffe 1991, 115). Most of the glass from the midden outside House A on Samson was bottle glass from wine bottles. There were a few pieces of window glass inside embedded in the floor (Mason 1984, 67). Glass recovered from the Samson buildings in 2006/7 includes two fragments of a nineteenth century glass candlestick, fragments of window glass (Johns *et al* forthcoming a).

Gunflints

Thirteen gunflints dating from the mid-seventeenth to the early nineteenth century were recorded during the off islands Electrification Project, mostly from Tresco and Bryher, with two from St Agnes and one from Bryher (Ratcliffe 1991, 40). Five gunflints were found in the post-medieval midden on Samson outside of House A (Mason 1984, 67).

Leather

A leather oar collar was recovered from House H on Samson in 2006 (Johns *et al* 2007, 51).

9.3.3 Building materials

Scillonian granite and in some cases, granite from Cornwall, are the principal building materials used on the islands. The granite is usually bedded in local earth mortar using *ram*. Granite ashlar, more likely to be used for higher status buildings is usually bedded in lime mortar.

The earlier roofing tradition for all but the most prestigious buildings was thatch. The older roofs coverings that survive in Scilly are scantle slate that was imported from North Cornwall. Terra-cotta tile is another traditional roofing material that was imported to Scilly, usually as a ballast cargo. This was more commonly used on outbuildings.

Salvage

Every scrap of timber which floated ashore or could be removed from shipwrecks would have been was put to good use by the Scillonians, incorporated into buildings as lintels, door or window frames, floor or ceiling joists or roof timbers, or simply cut up for firewood. In many instances wreck timbers were reused in the building of new vessels in the shipyards of St Mary's and Bryher. Most of the older buildings in Scilly still hold ship's timbers in some form or other, which are frequently exposed during alterations or extensions and identifiable by their iron or wooden treenail fastenings, shape, or cut-out sections. Such finds generally go unrecorded. When the Wesleyan Chapel in Garrison Lane, St Mary's, was being refurbished for conversion to a public library, educational centre and council offices in the 1990s, a large number of wooden ship components were found beneath the floorboards (Johns *et al* 2004, 146).

In 1998, a local builder on lifting the floorboards of Rose Cottage at Trenoweth in preparation to replace them with a concrete floor found the boards were supported on large curved timber frames from a ship. Building work on the 'Sandpiper' shop at the Bank on St Mary's showed that the ground floor was supported on huge oak keel timbers, some 400mm (16ins) square, which were notched out to hold hull frames. There are also several examples of ship timbers still to be seen around the islands; on St Mary's outside commercial premises at Old Town, on the concrete hard-standing of the old RNAS seaplane base at Porth Mellon, in Tresco Gardens Valhalla Collection; a door lintel in the Pest House, St. Helen's and a particularly fine example of a eighteenth/nineteenth century part stern-post with bronze gudgeons outside Bank Cottage on Bryher (Johns *et al* 2004, 146).

9.4 Identities

Until the advent of steamship technology in the mid-nineteenth century the voyage to Scilly from the mainland could take anywhere from 12 hours to two days (Hudston 2000, 11); the very remoteness and isolation of Scilly has led to the evolution of a distinctive island culture which is quite separate from mainland Cornwall. This island culture has had a fascination for many writers and was summarised by Gill Arbery (2002).

The islanders have a fierce independence and a natural suspicion of anything imposed from outside Scilly, particularly if it has the stamp of Central Government officialdom.

Although there are certain affinities with Cornwall, Scilly's long-established trade links and seafaring legacy has resulted in links with the wider world, so that the islands have developed a cosmopolitan outlook. Although many place-names in Scilly have old Cornish roots Scillonians do not consider themselves to be Cornish. Nearly all the inhabitants of the islands, old Scillonians or relative newcomers alike, develop a fierce protectiveness towards any perceived threats to the island's unique qualities, and they also wish visitors to love their islands as they do. The traditional life of the islands has been based predominantly on the sea, with coastal industries, and later flower farming and tourism, supplanting subsistence agriculture since the early eighteenth century (Arbery 2002, 25).

The population of the islands has remained fairly static at just over 2,000 for the last 20 years with approximately 1,600 on St Mary's, the largest island. The population is more than doubled by visitors at the peak of summer holiday season (Arbery 2002, 25).

Hugh Town on St Mary's is most akin to the mainland, but the pace is still remarkably quiet and slow. Of the inhabited off-islands, Tresco is run by the Dorrien-Smith family as a private estate, marketed as a sophisticated, unspoilt island paradise, Bryher and St Agnes vie for the honour of being the most unspoilt and traditional of the islands, whilst the inhabitants of St Martin's were said to be the most independent of the off-islanders. Of necessity, there has always been a strong tradition of recycling materials, 'make do and mend', on the islands, especially using wreck wood, which in the past has enhanced many buildings (Arbery 2002, 27).

The majority of original Scillonian families can only trace their association with the islands back to the seventeenth century, when their ancestors came to Scilly during the post-Civil War resettlement. Nevertheless, they are proud of their descent and consider that only families with at least 'three generations under the sod' can be called Scillonians. These Scillonians are now in a minority due to successive out-migration of the local population and continual influx of people from the mainland wishing to settle or retire. Traditionally, only those born in Scilly can call themselves islanders, others, even individuals who have lived there for many years, can only claim to be residents (Arbery 2002, 25). Locally, the islands are either called 'the Isles of Scilly' or 'Scilly', the term 'Scilly Isles' is regarded as rather derogative and only used by those unacquainted with the place.

Certain family names are inextricably linked with certain islands, for example: the Woodcocks and Webbers with Samson (many islanders are proud to trace their descent from these families), the Nances with Tean and St Martin's, Jenkins with Bryher, Hicks with St Agnes, Mumfords, Banfields, Lethbridges with St Mary's.

Scilly has an active Family History Group. The social history collection held by the museum, is of great benefit to those carrying out research on their family's life style in years gone by. Photos, articles of clothing, tools and instruments, books

and records etc held in the museum, have been acquired mainly from local sources and Island families.

9.5 Food production

9.5.1 Farming

Farming continued to be the mainstay of the economy during the post-medieval and modern periods; pigs and cattle were raised and potatoes and wheat were the main crops. During the nineteenth century earlier and better varieties of potato were introduced, the surplus being exported to the Mediterranean.

Throughout the post-medieval period farming continued to be the mainstay of the economy. Cattle, sheep, pigs, horses and chickens were the domesticated animals kept. The cattle were initially small, black, hardy beasts, which on some islands were fed on seaweed, but were replaced during the early nineteenth century by Devon X Shorthorn crosses and Jerseys. A peculiar small breed of sheep persisted into the twentieth century. Pigs were very large and plentiful, every householder keeping one. Horses, similar to the Exmoor pony and grazed mainly on furze (gorse), were kept as pack-animals for transporting seaweed (for use as manure) and, together with cattle were used to pull ploughs. However, during the nineteenth century they were largely replaced by donkeys, which could be obtained cheaply from the Cornish mining districts. For most of the post-medieval period the crops grown were potatoes, barley, wheat, peas, oats and a grain called *Pillis*. Potatoes were grown in large quantities, with some farmers gathering two crops a year; and the introduction of better and earlier varieties during the nineteenth century led to a surplus for export. Enough barley was grown to supply all the Islands with beer, bread for the poorer families and feed for cattle and pigs. Only a little wheat was produced locally, sacks of flour being imported from the mainland, but sufficient quantities of peas, oats and pillis were grown to serve the local need. The pillis was ground and used as an alternative to oatmeal (Ratcliffe 1995, 7-8).

Throughout the post-medieval period the heathland which adjoined the enclosed farmland was valuable as rough summer pasture, sub-divided by boundary walls on St Mary's but not elsewhere. In addition, the heathland was an important source of fuel - turf, furse (gorse), broom and ferns (bracken). Bracken was also used as bedding for animals - there are several areas (known as *Fern splatts*) on St Martin's where farmers had individual or group rights to cut bracken (K Low, pers comm to J Ratcliffe) and such areas presumably also existed on the other islands. Peat was also dug from low-lying wetlands, such as Higher and Lower Moors on St Mary's, and these may also have provided reeds and coppiced willow for thatching, basketwork and fencing. The pattern of anciently enclosed land on St Mary's extends across Higher and Lower Moors, suggesting that these mires were part of the system of enclosed pasture. Scillonians had been making use of heathland and wetland areas in this way since prehistoric times and continued to do so into the twentieth century, and, in the case of rough grazing on heathland, until very recent times (Ratcliffe 1995, 8).

Allotments on the Garrison between the walls and the edge of the cliffs were important for locals and soldiers of the Garrison.

The Cornwall and Scilly HER records a nineteenth century horse engine and threshing machine at Lower Town Farm, St Agnes, Scheduled Monument 15452.

Potato and flower cultivation, and to a much lesser extent the rearing of beef and dairy cattle, have continued into modern times, and a few blocks of bulb strips have been created since the turn of the twentieth century, a few areas of heathland have been taken in as improved grazing and some previously enclosed land has been remodelled. However, farming now accounts for less than 15% of

the Scillonian economy and the number of fields which are becoming inundated by invasive vegetation (bracken, brambles and gorse) is gradually increasing (Ratcliffe 1995, 9).

Water Mill

Troutbeck (nd [c1794], 96) records remains said to have been a water mill at the head of Watermill Bay, St Mary's. No remains of this mill were found by the OS field worker in 1978 but he thought it may have been in the vicinity of SV 922 121 where there is a small stream. The track leading down to the bay from the west is called Watermill Lane. The site was visited by the Cornwall Archaeological Unit in 1988 but no remains of the mill were found. It would be useful to revisit the when the vegetation is low.

Windmills

Grain was ground at communal windmills on St Mary's - the Garrison (1690s-1726), Peninnis Head (1726-1834) [50] and Buzza Hill (1834-late nineteenth century).

There were two late sixteenth or early seventeenth century windmills on the Hugh. One windmill was purchased in 1593/94 and both were noted by the 1652 Duchy survey which stated that they were employed by the Garrison and used by all the islanders with *'soake, toll, suite and custome thereunto belonging'* (Pounds (ed) 1984, II). Labelled 'windmills' on the 1655 map and shown with sails on a 1693 chart. Heath confirms that by 1750 they were ruinous: *'two circular walls of windmills formerly in use'*. Troutbeck in 1796 states that they were replaced by Penninis windmill after a dispute concerning islanders wanting access at hours the commanding officer deemed unreasonable. Plans to re-use the towers as blockhouses during the Napoleonic war in 1803 or 1804 were not pursued and in 1822 they were daymarks for shipping.

One windmill was demolished; its position was located by Alan Brodie and Mark Bowden in 2010, the absence of any large plants in this area indicating the presence of a structure impeding growth. Its site is marked on the 1902 Record Plan of Steval and Woolpack Batteries (Bowden and Brodie 2010, fig 61)

The other was allegedly converted into a gun tower, although there is no evidence for this beyond possible 'crenellations' at the top of the older walling. It was used in the mid-nineteenth by the coastguard service and then, in 1869, was acquired by the Shipping Gazette before being taken over in 1871 by Lloyds, who bought it in 1882. Now a private house.

A windmill was built on Peninnis by Francis Godolphin in 1726 when it became difficult for civilians to use those within The Garrison. By Troutbeck's time (c 1794) it was the only grist mill on the island, but was in poor shape and corn had to be sent to Cornwall for milling. By 1798 it was working again with Robert Maybee as the miller, and continued in use until 1834 when superseded by Buzza Tower. The disused mill later served as a signal tower and when Listed in 1954. Demolished in 1960, all that remains is its granite base, housing the lower millstone and bearing a date stone, FG 1726 and another inscribed WT.

Buzza Tower on Buzza Hill, St Mary's was previously called King Edward's Tower. This well known landmark has been maintained since 1912 as a memorial to the King's visit, but was originally a windmill built in 1834 to replace the earlier Peninnis Mill. It stands on a kerbed platform which probably incorporates the remains of a Bronze Age cairn excavated by William Borlase during the eighteenth century.

At Middle Down, Tresco is the bottom stone of a horse-driven mill, a circular platform with a central hole is surrounded by two channels carved out of natural rock. The top stone has been built into a wall elsewhere on Tresco. The mill is

said to have been surrounded by a circle of stones at one time. It is of post-medieval character and was mentioned by Troutbeck (nd), but its function is uncertain; suggestions range from a cider press to a corn or even a tin mill. More likely because of its isolated position and the lack of associated buildings, it was used to crush gorse for horse feed (Ratcliffe and Johns 2003, 52-3).

Quernstones

Querns continued to be used on Scilly until comparatively recently. William Borlase mentions querns (1756, 28) stating that 'if the Mill [Peninnis] is out of repair, or chances to be too much crowded by the Islanders; people, who cannot be conveniently served here, must grind their Corn at home; for which purpose every house is furnished with a Hand-mill.' He then goes on to describe a handmill'.

Many of the rotary quernstones to be seen on the islands are probably, therefore, post-medieval/modern in date. Several on St. Agnes certainly look to be. However, the problem with querns and other stone objects is that many reside in private collections where they have been collected over the years from fields and beaches and in many cases it is no longer possible to determine where they were found (cf Ratcliffe 1991, 67).

9.5.2 Fishing

Fishing was an important source of food but never a major industry. Seine fishing was probably carried since the sixteenth or seventeenth centuries. By this traditional Scillonian (and Cornish) method of fishing pilchards and scad (horse mackerel) were taken by a net laid in a half circle from a beach and then hauled into shallow water. In the eighteenth and nineteenth centuries, at least, scad and potatoes are reputed to have formed the staple island diet (Gill 1975, 107).

Tovey and Ginver's 1779 'New Chart of the Islands of Scilly' depicts a Palace at New Grimsby, presumably a pilchard 'palace' or fish cellar. New Grimsby Quay is still referred to as 'Palace Quay' (*ibid*, 111) and the row of cottages there is 'Palace Row'.

The quality of Scilly ling, caught on long lines, dried and salted, was renowned. In 1750 it was recorded that large quantities of fish were caught in spring and summer. Most of it was destined for local consumption, only the best dried ling finding a market in Penzance (*ibid*, 107). A letter of 1803 from Lord Nelson in Toulon to a friend in Plymouth thanks him for his present of Scilly Ling.

During the 1818-30 economic collapse of the off-islands a national appeal raised £9,000 to establish a commercial fishery. A fish cellar was built on Tresco, two 14-ton boats built for pilchard and mackerel fishing and another six repaired. Much money was spent on nets and other equipment but much more may have been diverted to the Hugh Town shipyards. The pilchard business appears to have made a fair start but soon collapsed although briefly revived in the early twentieth century (*ibid*, 107).

The Sennen Fishing Company unsuccessfully attempted to establish a seine fishery in Scilly in 1870, but after two years of failure abandoned the attempt (Noall 1972, 129).

The completion of the London to Penzance railway in 1865 gave a great impetus to the exploitation of Scilly's fishing grounds. From 1869 to the 1890s the Mount's Bay mackerel luggers often landed their catches at St Mary's, as did the ketches and yawls from Yarmouth and Lowestoft, popularly called the 'Yorkies', resulting in at least one famous fishermen's fight in Hugh Town. The fishing prospered with the new flower industry as the shipbuilding and piloting died. Often there were two or three hundred fishing boats in the islands during this time (*ibid*, 108-9).

Shellfish, particularly limpets, continued to be valuable dietary supplement. One of the few studies of Scillonian domestic middens is that of the midden associated with an early nineteenth century building on Samson (Mason and Hayton 1977; Mason 1984). Although other uses such as soil enrichment or fishing bait have been suggested in view of the large numbers present it seems likely that limpets at least occasionally formed part of the diet. The value of a foodstuff such as limpets lies in the reliability of the resource and ease of exploitation when more desirable sources of protein might be in short supply (Light forthcoming). Limpets and shrimps were largely exported in the later nineteenth century and less so until WWII. Since then shrimping has mainly been a seasonal leisure activity (Noall 1972, 108).

During the 1930s the majority of Scillonian fishermen moved into passenger launches for the tourist trade and local fishing became limited to the catching of lobsters and crabs for the hotels or the Penzance market (Gill 1975, 108). Today there are only small-scale fisheries around the Islands, although all the waters are fished. There are currently only 16 commercial fishing vessels in Scilly with some additional potting and fishing by individuals. Shellfish (including lobster, crab and crawfish) constitute two-thirds of the catch.

Evidence for fish processing is represented in the Cornwall and Isles of Scilly HER by only two records. Just above the shore on the east side of Old Town Bay is a deep rectangular trough cut out of a single granite block measuring 2.4m long by 0.9m wide by 0.9m high, with sides 0.1m thick. According to Troutbeck (nd) it was used for salting, when all the fish of the Islands were brought here for curing and stages were erected in the adjoining field for drying fish in the sun, he estimated that the trough will hold eighteen Winchester bushels and was dug from Salakee Down. At both ends the trough's inner faces slope inward. Incisions in one of its outer corners may be associated with lifting tackle.

Excavation of a drystone sub-rectangular building in the cliff face on the east side of North Hill, Samson in 1971 produced evidence suggesting a possible fish-smoking house. Inside was a stone-built furnace 1.2m long by 0.6m wide by 0.9m deep (Neal forthcoming a).

At the southern end of Appletree Point, just north of Long Crow, there is a long rectangular shellfish bed, bordered with small edge-set stones, which probably represent part of Augustus Smith's unsuccessful attempt to start an oyster fishery. It lies roughly at LAT level and was photographed by Dave Hooley in 1997.

9.6 Settlement

9.6.1 Introduction

Many of Scilly's modern settlements are historic in origin. Most farms are on the site of medieval or at least early post-medieval ones. Old Town is a settlement of twelfth century origin and the churchtowns on St Martin's and St Agnes probably also date back to that time. Following the construction of Star Castle in 1593 the focus of settlement shifted from Old Town to Hugh Town which has an early seventeenth century foundation. The early date of a settlement increases the likelihood of modern development disturbing buried archaeological remains. In addition to the potential for surviving buried remains, many of the buildings within the present settlements are post-medieval historic structures, not just within the main built environments, but also within farmyards where in addition to the farmhouses, nineteenth century (and sometimes earlier) barns, byres, glasshouses and packing sheds represent specific types of farming activity.

Scilly's vernacular architecture was first appraised in a seminal study of the regional styles of the west of England (Richardson and Gill 1924), it was also described briefly by Geoffrey Grigson (1948, 62) and David Bland in John

Betjeman's Shell Guide to Cornwall (1964). The 'Scilly Isles' occupy three and a half pages in Pevsner's Cornwall (Pevsner 1970, 208-11). In 1980 the Isles of Scilly Museum published a short well-illustrated booklet 'The Buildings of Scilly' by Peter Laws. In 1996 'Scilly's Building Heritage' by Peter Madden was published in the Twelveheads Press 'Heritage' series (Madden 1996).

A rapid examination of the buildings of the Isles of Scilly suggests the following groups and types of architecture that appear in the Islands and some examples of each:

Domestic Buildings: Houses in Hugh Town and Old Town that date back to the seventeenth, eighteenth, and nineteenth centuries ranging from small vernacular cottages to larger polite houses, Tresco Abbey, Scilly's twentieth century architecture and the challenges of modern development in an historic environment. Purpose-built hotels could be considered in this category.

Religious Buildings: Old Town Church, the remains of the former medieval priory within Tresco Abbey, Anglican churches on each of the islands, the various present and former Methodist chapels, the Roman Catholic Church, gravestones and memorials in churches and churchyards.

Public Buildings: Town Hall, Post Office, Museum, schools (old and new), reading room on St Agnes.

Agricultural Structures: Windmills, farmsteads that need to be considered as integrated complexes and not just for individual listed or unlisted structures.

Maritime: Lighthouses, day marks, harbour arm and buildings, lookouts, gig sheds, structures associated with fishing and smuggling.

Military: Old Blockhouse, King Charles' Castle, Harry's Walls, Star Castle, Cromwell's Castle, the Garrison's defences including buildings in the Garrison including the Powder House, Newman House, the buildings flanking the gate and the c1900 Defended Ports structures, St Martin's telegraph station, Telegraph Tower, Tresco Seaplane base and World War II structures on St Mary's.

Commemorative structures and street furniture: Monument to Augustus Smith on Tresco, K6 phone boxes, commemorative public furniture, street lighting

Uninhabited islands: Evidence of the settlement on islands such as Samson, St Helen's, Tean, will need to be considered. Samson's vernacular farmsteads are particularly significant archaic survivals – can the same forms be found on other islands but disguised by modern reuse?

9.6.2 The traditional post-medieval buildings of Scilly

Summary

An assessment of the historic buildings traditions of the post-medieval period was an important element of SHERF. Some work has been done on this subject before but there has never been an analysis that has looked at all building types on all the islands where traditional post-medieval buildings survive. This study attempts to identify the characteristic building traditions through its building types throughout the islands and to identify what might usefully be achieved by more intensive examination. Results of this brief study show that whilst some particular building types have been examined in detail others have had only superficial analysis and there are some building types that are at risk of almost total loss. It has also been established that the Isles of Scilly contain a built heritage that is unique and very special. The character of the traditional buildings in Scilly deserves better recognition and needs more thorough analysis and interpretation. The full illustrated version of this section of the report is available online on the SHERF webpage.

Aims

The aim of the study was to identify the interest and importance of the Scilly's historic building traditions and to place them in a wider context that might lead to further related research, collation, and investigation.

Methods

The study was predominantly a desk exercise to collate and assess available information about the traditional buildings of the Isles of Scilly. This included publications and reports, and the compilation of the listed buildings descriptions from the English Heritage Images of England website with photographs of most of the listed buildings (deposited with the project archive and available online on the SHERF webpage). Discussion relating to further work has been inserted usually following each building type section.

The built tradition

Context

Scillonian granite and in some cases, granite from Cornwall, are the principal building materials used on the islands. The granite is usually bedded in local earth mortar (subsoil) called *ram* in Scilly ('rab' in Cornwall). Granite ashlar, more likely to be used for higher status buildings is usually bedded in lime mortar.

The older roofs coverings that survive are scantle slate that was imported from North Cornwall. However, the earlier roofing tradition for all but the most prestigious buildings was thatch. This is generally called 'rope thatch' in Scilly due to the ropes that were used to hold the used over the thatch and held in place by stone weights to protect the thatch from the high winds that are common on the islands. There are now no surviving thatched roofs but good evidence for their former existence is contained in old photographs, particularly those in the Gibson Collection. Further evidence is contained in many of the surviving buildings. This evidence includes heightening of buildings from when they were adapted to accept slate roofs and often to insert upper floors to buildings that had been built as single-storey structures.

An important source of information about the design of traditional buildings that were originally roofed in thatch are many of the buildings of the ruined settlement on Samson that, except for deterioration, survives virtually unchanged since the settlement was abandoned in the mid nineteenth century as part of the educational and other reforms that were being carried out by Augustus Smith, the then governor of the islands. Elsewhere there are a few buildings that retain their single-storey appearance but many that display their former roof lines in heightened gable ends.

Settlement patterns

The settlement patterns that now exist in Scilly have evolved as a result of many factors including:

- topography;
- relationship to the sea;
- access;
- land use potential;
- community considerations; and
- reforms by Augustus Smith in the nineteenth century.

The only proper 'town' in Scilly is Hugh Town on the largest island of St Mary's. This was built on an isthmus of land between the main part of the island and the Garrison (a defended headland), originally to service the garrison and passing ships. The town is served by a harbour. On the opposite side of the isthmus is Old

Town, a smaller settlement that grew up relating to a Norman church and a sheltered cove.

Elsewhere, settlements are small or dispersed. Generally the most recognizable larger groups are hamlets rather than villages in terms of their size but churches that were built in the nineteenth century on St Martin's, Tresco, Gugh and St Agnes mean that the small settlements to which these relate are technically villages. The use of names such as 'Higher Town', 'Middle Town', and 'Lower Town', as used on the islands of St Martin's, Bryher, and St Agnes are ways of describing their relative locations as small settlements. The word 'town' in Scilly is often used as an abbreviation of 'townplace', a term also used in Cornwall as describing a small settlement.

Throughout the inhabited islands the distinction between settlements and farmsteads is often blurred and historically complex, usually relating to land use and distribution, and the way that individual Scillonian families have affected their development.

The main traditional industries of the islands are farming, horticulture, and fishing or maritime related. Typically, islanders would need to be involved in more than one of these industries to survive, and this is still true for many islanders today. The traditional economy of the islands now is tourism that depends on a ferry and cargo boat link with Penzance in Cornwall, and air transport, that comprises a helicopter service to both St Mary's and Tresco from Penzance, and a light aircraft passenger service from either Newquay or Land's End to St Mary's.

Building types

The range of principal building types in Scilly is a result of many historical factors including: defence of the islands, farming practice, maritime activity, and the housing and mercantile requirements of the islanders.

Date periods

Most of the buildings discussed in this report date from the post-medieval period but there is small number of buildings from the medieval period or earlier that have relevance to the evolution of Scilly's built traditions. Except for buildings relating to the defence of the islands that mostly date from the sixteenth or seventeenth centuries, there are very few buildings that are pre-1700. The vernacular buildings that characterize the simple dwellings of Scillonians date mostly from the late eighteenth to the middle of the nineteenth century.

Materials

Granite is the principal traditional building material in Scilly. Many of the hedgerows are built with granite rubble, the stone mostly probably resulting from field clearance. Most of the roofed buildings are constructed from granite rubble bedded in earth mortar. Granite has been used for the construction of buildings in Scilly since prehistoric times. From the late sixteenth century granite has often been dressed to shape in order to create more refined structures.

A cross section through a truncated length of defensive wall on the Garrison, St Mary's provides an opportunity to examine the construction of this walling through its depth; the battered (sloping) outer faces are constructed of granite ashlar but the inner core is constructed from granite rubble.

Sources of the granite used on the island are believed to be either from field clearance or from small quarries on the islands. However, granite from Cornwall was brought over for the construction of the Bishop's Rock Lighthouse. There has been a long tradition for lime-washing granite rubble walls. During the 20th century many buildings were stripped of their historic layers of lime-washing now leaving the impression that it is a rare tradition.

Rock-faced granite has become part of the Scillonian tradition. The more established use of granite rubble appears to have been a strong influence in the development of an exaggerated rustic form of this material as used at the Post Office (1897) at Hugh Town on St Mary's, probably by Thomas Algernon Dorrien-Smith, Lord Proprietor (of Scilly) and architectural amateur (list description), who was responsible for the design of the church on Tresco (q.v.). This way of using granite is repeated in a number of buildings in St Agnes including: porches at Palace Row, New Grimsby; Pentle House where rock-faced granite is used extensively, and for the porch of a house at Old Grimsby. Rock-faced copings on the gateway to the harbour at Hugh Town appear to have a design affinity with these examples, and there may well be other examples of this sort of work in Scilly.

Granite ashlar is used as a facing material on many of the more prestigious buildings, usually bedded in lime mortar, and even some of the architectural more modest buildings are also faced with granite ashlar to their front walls.

Dressed granite is used for many purposes and in a variety of ways. Often the granite is only lightly dressed from granite rubble blocks so that the desired flatness is achieved where it matters.

Stucco is also used, more often as a prestige material, particularly on some of the buildings in Hugh Town; it is also used to provide a more refined finish on some of the more rural buildings.

Scantle slate roofs survive on many of the older buildings or this very traditional material has been used again when buildings have been re-roofed. However, many of the older buildings had already been re-roofed in slate of uniform size or with the inferior covering of asbestos fibre cement.

The 'quarries' from where the slate was extracted were probably located in North Cornwall, now represented by two surviving quarries. The largest and oldest quarry is at Delabole (the Delabole Slate Quarry) The Delabole Slate website claims the following: 'The Delabole slate quarry is one of the largest of its type in England and has run continuously since the fifteenth century making it the oldest working slate quarry in England. In the reign of Elizabeth I the five quarries on the site of the now larger pit assumed considerable importance delivering slate to Brittany and the Netherlands. In 1841 the five quarries combined to make the Old Delabole Slate Quarry.' The other main quarry is at Trevillet, near Tintagel, an old quarry that was reopened about 50 years ago when it became part of Mill Hill Quarries Ltd. This company own three quarries including Trevillet and Mill Hill quarries near Tavistock in Devon. The company website states: Mill Hill Quarries "have been in work for many years.....for two centuries or thereabouts, for roofing slate." extract Mines & Quarries Report to Duke of Bedford 1857.

The scantle slate tradition has typically 14 inch (350mm) long slates for the eaves courses diminishing by one inch length sizes (each size used for a number of courses of slates) to a 6 inch (150mm) length at courses towards the ridge. This tradition makes good use of the smaller slate sizes that come from quarries. The slates are fastened to laths that are spaced according to the coursing, the lath spacing further closing together wherever there is a change of course size. This change is called a 'twist' and this can easily be seen when the roof is viewed from underneath. The slates are fastened with split wooden pegs projecting to the underside so that they hook over the laths. Where the fastening opportunity coincides with rafter locations the slates are nailed directly to the rafters. Scantle slate is either dry laid or wet-laid, in both cases usually rendered underneath onto the laths with either earth or lime mortar. Where earth mortar is used there is usually also a thin layer of lime mortar added as a final finish. This mortar has two main practical functions: it prevents wind-driven rain from entering the building and it also prevents condensation from occurring under the slates and

therefore prevents frost damage. Many old roofs are suffering from powdering caused by expansion of successive laminates of slate caused by frozen condensation.

Thatch was once common in Scilly for cottages, small houses and farmhouses, as well as outbuildings but this tradition does not survive. The small house called 'Thatch' at Old Grimsby on Tresco is thought to have been the last building in Scilly to have had its thatched roof replaced (in 1989). Many buildings were heightened in the later 19th century when their thatched roofs were replaced with slate.

Terracotta tile is a further traditional roofing material that was imported to Scilly, usually as a ballast cargo. This was more commonly used on outbuildings.

Chimneys on most of the earlier buildings are built from granite rubble or with dressed granite. The latter material was used so that chimneys could be built to more slender proportions needing only one thickness of stone. The traditional for the use of stone for the construction chimneys survives later in Scilly than in Cornwall though this tradition was used quite late in West Cornwall, and within other areas with granite outcrops.

Granite chimney stacks in Scilly represent a unique survival of a tradition that dates back to at least the 16th century. Enough examples of these survive to enable their detailed study and distribution, their relationship to different building types, and the differences in their character and construction. Granite stacks are a very important part of the historic building character and interest in Scilly. Consequently, their survival is a finite resource that cannot afford further loss or alteration.

Brick has been used for chimneys on later buildings or where higher numbers of fireplaces required multiple flues within each chimney. Brick chimneys also deserve detailed study and recording together with a strong policy for their repair and conservation.

There has never been a thorough analysis of the building materials of Scilly. There is much work to be done including the changes in tradition through time, the source of the materials and their distribution, the names of architects, builders and crafts people, and the cultural impact of changes of fashion and building methods and the introduction and function of various building types. The location and understanding of granite extraction and dressing, including quarries, is worthy of a special study.

The roofing tradition in Scilly deserves a special study, both of records of the former tradition for thatch, and the parallel later traditions of slate, and imported tile. Surviving standing buildings provide an opportunity to study the traditional character of roofing materials plus the extensive evidence for buildings that were formerly thatched.

It is strongly recommended that all buildings that have evidence for the former uses of thatch are properly catalogued and recorded. Also, there is a strongly-held view by many on the islands that a selected building should be re-thatched with rope thatch to display this important tradition.

Plan forms

The subject of plan forms would require extensive investigation of internal arrangement within surviving traditional buildings for the subject to be presented with confidence and accuracy. However, much can be gleaned from external examination and from the few buildings that have interiors known to Henrietta Quinnell or can be established from ruined buildings, or from list descriptions. External examination is usually sufficient to establish whether a building is single-depth (one room deep) or double-depth (two rooms deep), also whether a

building has one room at the front accessed by a side passage as with pairs of cottages, or has two rooms at the front usually separated by a central passage or entrance hall. Generally plan types are similar to those used on the mainland. What is distinctive in Scilly is the small scale of so many of its buildings. The simplest buildings in Scilly are single storey and have only two rooms, a kitchen and a parlour, plus sometimes an unlit attic within the roof space.

Building types examples

Domestic buildings

Cottages can be categorized into a number of types that can be better explained by discussion of selected examples.

Single-storey cottages are a building type that is now extremely rare in Scilly but was probably one much more abundant. In many ways these buildings resemble crofters' cottages in Scotland or 'bothies' in Ireland and Wales. Many of the best examples now survive as roofless ruins. Others remain as altered structures that were heightened when proper upper floors were added.

Study of the smaller houses of Scilly may best be achieved as a thematic exercise so that the buildings get the more intensive assessment that they deserve. Their similarity to other small buildings in Ireland, Scotland, Wales, and elsewhere, needs to be better understood and comparisons should be made taking into account all the factors involved in the development of the tradition for these simple but evocative buildings.

One-room-plan cottages are very rare in Scilly and are usually found added to small houses. A development of this plan form is to have one room at the front and a service room at the rear.

Pairs of cottages whether with single-depth plans, or double-depth plans, are a common building type in Cornwall, usually with a pair of doors together at the front (mirror-image pairs). This building type is found particularly in the industrial towns and villages. However there appears to be little such building tradition in Scilly (further fieldwork is required to confirm this suggestion with confidence). There are examples of similar one-room-plan cottages built next to each other but these are the result of later addition with one cottage added to another. There are two examples of this on Samson: Houses D and E and Houses Q and R. These are ruined cottages with doorways set to the same side of each 'pair'.

The way that rows of cottages/houses have evolved needs to be recorded as a stylistic group. Much can be learned about the sequence of build by studying the quoin-work that usually survives.

Rows of small houses survive in reasonable numbers in Scilly. Most of the older vernacular buildings in Scilly are small double-fronted houses. With respect to identifying building types under English Heritage guidelines (as used in list descriptions) a house is identified as having at least two ground-floor rooms side-by-side. This means that most of the dwellings in Scilly should be described as small houses, houses, farmhouses, or town houses. Consequently, there are very few dwellings that should properly be called 'cottages' though that is probably what many of the smaller houses are popularly called.

Planned terraces, except for specialist housing such as coastguards' housing, are uncommon in Scilly. Most are concentrated in the residential streets of Hugh Town. Grouping of traditional housing clearly has many causes and effects, particularly with respect to the culture and living conditions of the islanders of Scilly. Research needs to be carried out into the way that groupings have come about, their distribution, and their particular character. For example, to what extent have the buildings evolved in a piecemeal way and to what extent have others been planned? The management of the islands since Augustus Smith

became Governor is clearly a strong factor but this needs to be better understood and the extent of his influence needs to be identified and described.

Principal town houses in Hugh Town stand out from the crowd. These are usually houses built for merchants or worthies of the town.

Town houses include many elegant houses in Hugh Town. Some are detached but most adjoin other houses of a similar period, or are within a row of buildings of many different dates. What usually distinguishes them from their more modest neighbours is: good proportions, generous scale, and often classical symmetry or classical features.

Town houses with shops are an interesting building type within the commercial heart of Hugh Town, St Mary's. There are very few purpose-built shops. Most of the shops in the town are the result of town houses having been converted from houses to shops with retained living accommodation above. In many cases the conversion may well have continued the original function of the building as many town houses were originally built as merchants' houses. However, in the nineteenth century and early twentieth century conversion of a town house to accommodate a shop usually meant installing a 'show' shop front that would promote and exhibit the goods that were being offered for sale. Such alterations often meant considerable alteration to the fabric of the building, changing its character forever. It is therefore very fortunate that many of these conversions are now valued for their own particular character. Sometimes the stone frontages were carefully altered and stonework made good to disguise the changes but occasionally, where changes were difficult to hide a whole frontage was stuccoed to conceal the alterations.

Town houses deserve attention as a separate group. The story of their builders, architects and occupants is more likely to be unearthed than studies of the more modest building types. However, this can only be achieved by determined research. Results of such a study together with the recording and analysis of the building is likely to yield invaluable results that are important to the story of Scilly.

A much better understanding of town houses with shops is possible with detailed research that includes reference to trade directories and other documentation of the commercial activity on the islands.

Notable houses in Scilly are identified here as those that are particularly special or important such as Hugh House, St Mary's or Tresco Abbey. Some have unexpected origins or were not originally built as houses at all but are nevertheless of considerable historic interest.

Some of the most important domestic buildings in Scilly have already been assessed in detail but many others have only received the most limited study, some of this as a result of the listing process. This building group promises the most detailed historical information that should be the subject of further research. Some of these buildings have been a strong influence over the building tradition of the islands from their architecture and methods of construction.

Farmsteads include farmhouses and small rural houses in Scilly, building types that are often architecturally indistinguishable from each other. A farmhouse is usually a small house that was built as a farmhouse or has been used as a farmhouse. Most are detached but they sometimes adjoin other houses, or have been extended, often for extended families. Most of the farms are very small and would usually be classified as smallholdings or horticultural holdings. Some of the settlements have evolved from farmsteads and have acquired extra dwelling houses over time. The only planned group of farm buildings belongs to the Abbey Farm, a group that includes a former barley mill and fish smoker of c1835. These farm buildings have been converted to holiday accommodation.

Farmsteads require much research and examination if they are to be better understood and their importance in the story of Scilly properly recognized. Despite the fact that so many farm buildings have now been converted there are still many that retain their original character. Similarly, many of the houses that may have been dubbed farmhouses need their origins explained and other domestic buildings within the settlement investigated.

Industrial buildings

Industrial buildings appear to be an unusual building type based on the surviving buildings. Scilly probably never supported a strong manufacturing, processing, or storage function, and consequently there are very few buildings that display an industrial heritage. Industrial buildings are an interest group that requires considerable study and research. The buildings that were used for industry need to be identified and recorded and research targeted at their origins and their functions.

Community use

Anglican churches represent a long tradition for Christian worship on the islands. Early Christian sites include the ruin of the pre-Reformation St Nicholas' Priory on Tresco, medieval church and oratory on St Martin's, remains of a pre-Conquest chapel on Tean. Old Town church is probably the oldest roofed building on the islands. There is a 19th century Anglican church on each of the inhabited off islands but St Mary's has two Anglican churches: the original Norman church at Old Town and a 19th century parish church in Hugh Town. Churches on the off-islands replace the earlier church buildings noted by the Cornish antiquarian, Borlase as having been built in the same style and to two different sizes, and all built for the Godolphins. The new church on St Mary's was built by Augustus Smith between 1836 and 1838.

There is only one vicarage: the 'Chaplaincy', near the church in Hugh Town. There is also a Catholic Church of 1860 at Higher Strand, Hugh Town, St Mary's, originally built as St Mary's School for Girls.

While much is known and much has been written about the buildings that represent the established church in Scilly, the stories that they contain in their records, in their monuments, and within their burial grounds needs to be further assessed and collated. Also, the buildings themselves deserve better analysis, and recognition for the influence they have had on the evolving building traditions of the islands.

Methodist chapels are an important building type in Scilly as they represent a cultural change to the way of life of the inhabitants of the Isles of Scilly. As happened in Cornwall, during the 19th century, Methodism was competing with the established church and Methodist chapels were built on all the currently inhabited islands except Tresco. There are three (identified) Nonconformist chapel buildings on St Mary's. Nonconformity was once a very influential aspect of the culture of the isles of Scilly and deserves further study, particularly with respect to its surviving buildings. Two chapels have already been converted to domestic use and the most important chapel is used as offices. Consequently, the two chapels that remain in use as places of worship should be recorded as a matter of urgency.

Educational use

In 1834 Augustus Smith was granted a lease by the Duchy of Cornwall. As Lord Proprietor of the Isles of Scilly he became a reforming governor who unlike previous governors took a great interest in the people of the islands and made his home there. Until his death in 1872 he made great changes to the islands. "He devoted his life unselfishly to those Islands and added greatly to their beauty"

Before coming to Scilly from the home counties Smith had already been a keen advocate of improving education for the common people "When I find youths, the progeny of hereditary paupers, simply through being able to read, write and cipher, readily obtain in London apprenticeships in various trades, I felt the true or at least the main clue was discovered". As a result of his concerns Smith set up a number of non-denominational Parish Schools that were to survive until taken over following the 1870 Education Act. When he came to Scilly he was determined that all the island children should have a good education. During the mid nineteenth century Smith had schools constructed on St Mary's, St Martin's and St Agnes and effectively made education compulsory. In order to achieve this, the declining population on Samson was moved to other islands so that the children could attend school regularly.

The 1854 boys' primary school building at Carn Thomas was designed by Augustus Smith. This was later extended and is now used as the infant and junior school on St Mary's.

Public Houses

Public Houses as a building type in Scilly are not a straightforward area of study. There are probably no old purpose-built public houses on the islands. All the traditional buildings now used as public houses appear to have been adapted from former houses or working buildings.

This building type is complicated with respect to its origins and history. It is very important to community life in Scilly today but the role of public houses at earlier times needs to be unravelled as a detailed research project together with close examination of the surviving and former public houses.

Defence related buildings

The Isles of Scilly are strategically placed as a good invasion base at the entrance to the western approaches and consequently many structures have been added to the islands to counter this threat.

The defence buildings of Scilly have benefitted from much investigation in recent years and many authoritative reports have been written. However, there is still much to be learned and explained. These buildings need to be studied as a thematic group with all the available information brought into play but with unanswered questions targeted. For example, when the gun platform was added to Cromwell's castle the original stone staircase was cut away to make a new doorway into the building and the walls made good. This kind of analysis is often lacking from available studies. Reconstruction drawings of the defence buildings explaining the way that they originally functioned and the ways that they have been altered to fulfil advancing technologies would greatly add to our understanding of these important buildings.

Maritime use buildings

Gig sheds, or their ruins, survive on the islands of St Agnes, Bryher, St Martin's, Samson, and St Mary's. These buildings were constructed to house the pilot gigs that became an important part of the economy of the islands. All are constructed with granite rubble and all are located for easy launching of the gigs.

Lighthouses have a long history in the Isles of Scilly. The lighthouse on St Agnes was built in 168 and is the one of oldest lighthouses in Britain. The Daymark on St Martin's was built in 1683 and must be one of the earliest examples of this building type. The lighthouse on the Bishop's Rock is a triumph of engineering over nature. The first lighthouse, built from steel between 1847-9, was washed away in a storm in 1850! The present lighthouse is built from interlocking blocks of granite ashlar initially between 1852 and 1858 but had to be strengthened by adding an outer sheathing of granite ashlar (and heightened) that was completed

in 1882. It is the tallest lighthouse in the British Isles. Round Island lighthouse was constructed in 1887.

Quay walls or harbours of some kind exist on all the inhabited islands. Some of these have been upgraded in recent years by adding an outer sheathing and by extension. There has been a harbour at Hugh Town since the early 17th and this has been extended many times. The older granite masonry is extremely interesting. The blocks of granite are shaped so that they fit together as tightly as possible.

Harbour walls deserve a special study, both of surviving walls and of archive photographs of walls that can no longer be seen. They should also be compared to harbour walls on the mainland. The walls on Scilly are an important part of the character of the islands. The listing status of the main quay should be re-assessed.

Domestic outbuildings

Domestic outbuildings include earth closets, back houses, and the buildings that were used for small scale flower packing and other horticultural uses. All are important to the story and character of Scilly.

The modern period (mid twentieth century onwards)

New-build (traditional) The older building traditions in Scilly have been a strong influence on the design and construction of buildings in the modern period. Granite is still a favoured material and has been used well in some of these buildings but rarely with such skill as when granite walls were the prevailing tradition.

New-build (contemporary) With the shortage of traditional buildings on the islands much of the new-build has had to be constructed with alternative materials that include rendered concrete block and timber-frame construction.

Discussion

The results of this brief study demonstrate that the buildings of Scilly are important for many reasons. They include buildings of unique or rare building types and that these buildings are the result of a distinctive island culture. The limited choice of building materials has contributed to a harmonious vernacular built tradition that in many places appears to grow from the landscape that surrounds it. In other places there is a more polite kind of architecture, mostly within Hugh Town on St Mary's. Adding to the diversity are the various specialist building types and structures, most of which share the same materials of construction but add interest in their design fit for function. Comments about each distinct building type have already appeared in the appropriate sections of the report. What the study has also shown is that interest and importance is not always about status or architectural quality. Many of the simple buildings of the working people of the islands are now recognized as being an essential part of the story of the islands and their simple unpretentious design and appearance attracts the admiration of islanders and visitors alike. Some of these simple buildings are now so rare that they must be considered as a threatened building type. However, all of the traditional buildings of Scilly are significant and contribute to the whole character and interest of the islands.

9.6.3 The historical development and topography of Hugh Town

There has been settlement in the area of what is now Hugh Town from at least the Bronze Age. Traces of a group of roundhouses of that period have been recorded at Porthcressa and an apparently extensive late Iron Age – early Roman cist cemetery together with lynched fields and a possible roundhouse lie under post-War housing on the south side of the town (Ashbee 1954; Dudley 1960-61).

There are also hints of activity in the medieval period. Early medieval grass-marked pottery has come from a shell midden on the lower slope of the Garrison (Ashbee 1954) and sherds of imported French pottery dating from the late twelfth to the fifteenth century are recorded from Porthcressa (Allan 1991, 93). Charles Thomas (1985, 217) has suggested a fourteenth-century date for a stone-built chapel which formerly stood close to the shore near the Bank and survived, converted into a dwelling, until about 1830 (*ibid*, 189, 215-7). Local tradition of a 'great quantity of human bones' found on the south side of the former chapel (Troutbeck *nd*, 60) suggests a burial ground attached to it, presumably pre-dating the twelfth-century foundation of the church and graveyard at Old Town. This in turn suggests an earlier religious structure at the Bank and presumably some nearby settlement.

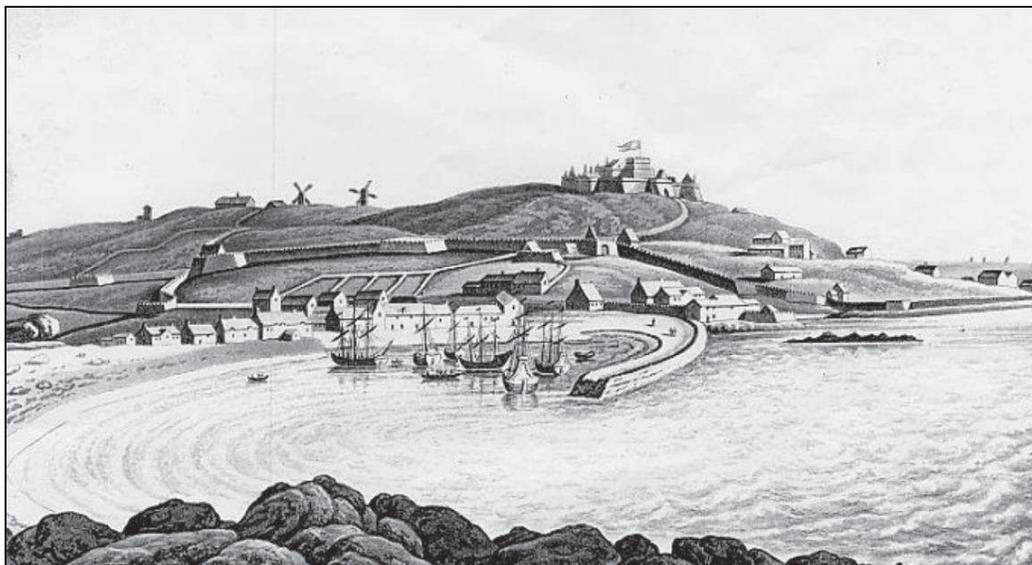


Fig 9.3 An early nineteenth-century reproduction of a view of Hugh Town taken in 1669 (Magalotti 1821, facing page 112)

The present town, however, owes its origins to the construction of Star Castle and associated structures in the 1590s and in c 1601 of a quay on the sheltered northern side of the island directly below the gateway to the military complex (Cox and Thorp 1993; Bowden and Brodie 2011). (The proximity of the medieval chapel to the location of the new quay suggests that this may already have been an established landing place.) Early development of the settlement was apparently slow: in 1652 there were fewer than 20 houses in the 'Hugh or New Town near the new castle', with another handful within the Garrison and a further eight or ten around Carn Thomas and Buzza Hill (Pounds 1984, II, 139-40, 144-5). By comparison, the survey recorded around 40 houses in the area of the medieval settlement at Old Town (*ibid*, II, 140-1, 148).

Early visual representations of Hugh Town confirm its small scale and illustrate the early origins of several distinctive elements of its historic topography. Views taken in 1669 and 1715 (Fig 9.3; Bowden and Brodie 2011, fig 38) show an open area south of the quay, below the gate in the Garrison curtain wall. This formed the landward side of a working beach where boats could be loaded and unloaded in the shelter of the quay. This area partly survives as the Bank, now enclosed and with the former long-standing open access to the shore preserved only by the slip adjoining the Atlantic Hotel.

The early settlement clustered loosely around this landing place, straggling along the foreshore and extending south east as far as the triangular space fronting the present Lloyds TSB. Beyond this, what is now Hugh Street had a more planned

aspect, shown in 1715 with a straight alignment and a continuous row of buildings on both sides as far as the junction with the present Garrison Lane. This appears to have been the furthest extent of the settlement in 1669 but by 1715 it had expanded further east along the two roads which diverged from this point, now fossilised as Silver Street and the narrow link between Hugh Street and the Park. By 1715, a scatter of buildings also lay along what would become Garrison Lane, Well Lane and Jerusalem Terrace, set among small fields or gardens on the lower slopes of the Garrison. Development on the rear of some of the plots on the north side of Hugh Street established what subsequently became the south side of Thoroughfare, facing the foreshore and linked by an alley to the small square which now fronts the *Bishop and Wolf* pub. This latter area originated as an open space at the edge of the settlement, but gained importance through construction on its south-west side of a house for the Godolphin steward for Scilly, rebuilt after a violent storm surge burst across the isthmus in 1744 (Heath 1750, 26).



Fig 9.4 William Borlase's depiction of Hugh Town in 1752 (Borlase 1756, pl 3)

By the mid eighteenth century Hugh Town had developed beyond its early primary role as a service centre for the military complex on the Garrison to become a central place for the whole of Scilly. It was the Customs port and profited from servicing vessels sheltering in the Pool from bad weather or adverse winds. Heath (1750, 26) described the town as 'one long and two cross streets, of strong stone-built houses, wherein are several shop-keepers and public house-keepers . . .' A few years later William Borlase reported the town 'much improv'd of late in building . . .' (Borlase 1756, 12-13) but his depiction of 1752 (Fig 9.4) suggests little expansion beyond its 1715 extent and the building he referred to was probably replacements of structures damaged in 1744 (Heath 1750, 28-9). Borlase's illustration again shows the Bank as an open space behind the foreshore with vessels moored in the shelter of the quay. At the south-east edge of the town, the new steward's house dwarfs clusters of single-storey structures along Silver Street and on the east side of the alley from the space fronting the *Bishop and Wolf* to the present Thoroughfare, each group apparently set within a compound. Roads to the 'country' – Old Town and the eastern parts of the island – are shown diverging from this eastern end of the settlement, their alignments establishing what subsequently became the north and south sides of the Parade (now the Park).

Spence's *Maritime Survey* of Scilly (1792) shows little change over the preceding four decades, but an original watercolour of Hugh Town in about 1800 (Kirkham, forthcoming) indicates a surge in building activity at the end of the eighteenth century. New buildings with their backs to the sea along the north-eastern side of

the Bank now blocked what had previously been a wide area of direct access to the shore and more building is apparent on Well Lane and at the lower end of Garrison Lane. The view also shows the initial stages in enclosing the space which subsequently became the Parade, depicting the surviving row of double-fronted two-storey houses at the west end of the north side and the present Riviera House fronting onto the space from the east. The Parade is shown open to the south and was clearly then at the eastern edge of the town. Beyond it on the track which later became Church Street was an isolated two-storey structure (perhaps the vernacular building now adjoining the Bell Rock Hotel); a long single-storey structure shown fronting onto the shore in the area of the present Lower Strand was perhaps similar to the cottage rows which survived into the early twentieth century on Higher Strand. Hugh House, the officers' quarters built in 1792 (Laws 1980, 10), dominated the town from immediately within the Garrison wall.

Contemporary descriptions suggest a thriving settlement. Henry Spry commented in 1800 on the 'many new Houses built within the last 20 Years' and remarked that the town had 'many good houses and a great number of inhabitants' (Thomas 1979, 10). He additionally described typical building materials: 'The Houses are built with Moor Stone which is very plenty [*sic*] every where, they Cover the best Houses with Slate brought from Cornwall; but all the Common Houses are Covered with Straw, done down and fastened with Straw Ropes' (*ibid*, 9-10).

Two decades later, George Woodley (1822, 166) described the town as 'one principal street about three hundred and twenty yards long [i.e., from the quay to the Parade], but very irregular both in its course and in the appearance of the houses; and of several lanes, alleys, courtlages, &c.; most of which are paved with round stones' (*ibid*, 164). The present Lower and Higher Strand were by this time lined by a row of small houses extending almost to Carn Thomas (*ibid*, 171). This area was also a focus for Hugh Town's shipbuilding industry, which had begun in a small way in the eighteenth century but developed considerably in the early decades of the nineteenth. By the late 1830s four shipyards were active on the foreshores at Town Beach and Porthcressa (Davies 1988; Matthews 1960, 183).

The lease of Scilly taken up in 1834 by Augustus Smith required completion of a new church – the original island church near Old Town had become ruinous – and a large extension to Hugh Town quay. Both were achieved before the end of the 1830s and marked the beginning of another important period of change. In negotiating his tenure with the Duchy Smith ensured that he would be able to create building leases, to be taken up by local people 'who have realised a small capital of two or three hundred pounds in the shipping business' (Matthews 1960, 180-1). This is the context for the flowering of Hugh Town's distinctive 'Cornish Regency' architecture, particularly notable around the Parade and Church Street.

Smith's new church was located in a prominent position facing the settlement along the existing road from Old Town but well outside the then built-up area of the town. This axis between the church and the Parade, now Church Street, became a focus for development over the remainder of the nineteenth century. Most of the modest but well-designed terraces towards its western end were probably built as individual ventures during the later 1830s and 1840s and several of the more substantial houses are almost certainly of the same period, including Lemon Hall and the present Bell Rock Hotel. At about the same period a Bible Christian chapel was constructed in granite ashlar close to the west end of Church Street (Stell 1991, 57).

Church Street now has the air of a planned streetscape, rising gently from the green space at the Parade to the church and lined by a mix of genteel domestic

and institutional buildings; in fact it was created piecemeal over a period long enough to make it unlikely that any initial master plan was followed. Augustus Smith added an infant school to the original Bible Christian chapel on the north side of Church Street in 1854 – he built a boys’ school at Carn Thomas in the same year and a girls’ school on Lower Strand in 1860 (Matthews 1960, 170; Madden 1996, 38, 39) – but much of the east end of Church Street beyond Well Cross remained undeveloped until late in the century (Fig 9.5): to the south open fields rose onto Buzza Hill and photographs show the north side, between Church Street and the rear of properties on Higher Strand, as a large open space used to store timber for shipbuilding and later as gardens or flower strips (Arlott 1972, figs 90, 101, 104; Cowan 1997, fig 59; 2001, 31). A further terrace and a detached villa were built on the south side before the end of the 1880s but development on the north side ceased until a new Bible Christian chapel was built in 1899 (Madden 1996, 27). The terrace to the east of the chapel may date to the early twentieth century but the final plot on the north side was not occupied until St Mary’s Hall (now a hotel) was built in the late 1930s (*ibid* 1996, 27).

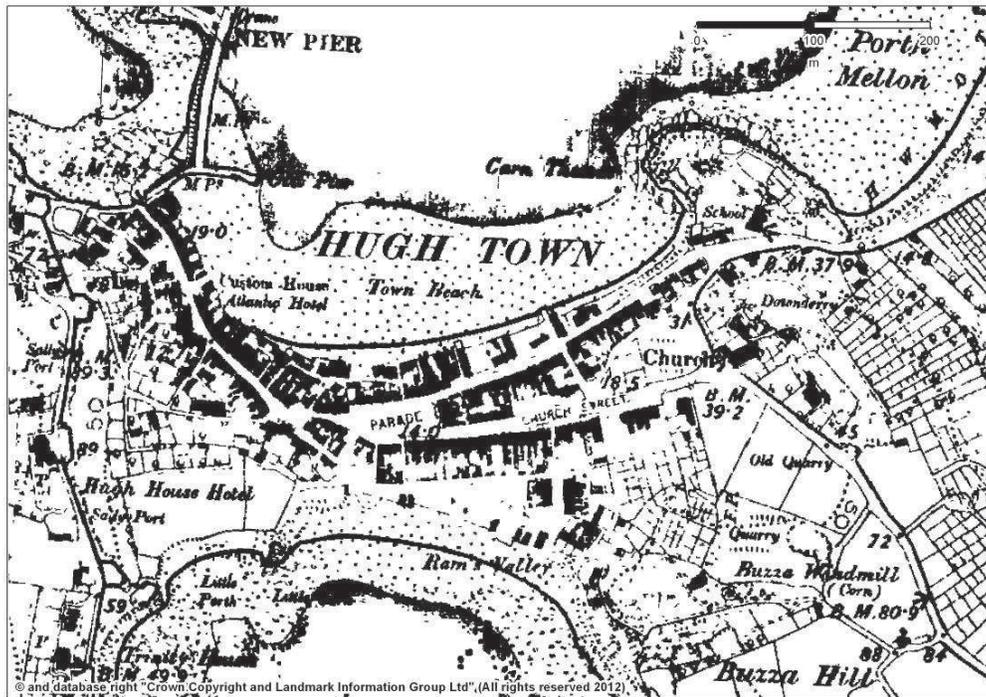


Fig 9.15 Hugh Town on the 1st edition Ordnance Survey 6in: 1 mile map, c 1890

Construction of the Town Hall on the Parade in 1889 (Madden 1996, 30) provided a prestige building to dominate the west end of Church Street. At about the same time the central area of the Parade was enclosed as a public park (Cowan 2001, 30, 31; cf Betjeman and Rowse 1974, fig 157), contributing further to the urban character and developing air of order and gentility around this part of the town.

Hugh Street and the Bank area also saw changes. The house from which Tregarthen’s Hotel subsequently developed was built above the end of the quay in Hugh Town’s distinctive ‘Cornish Regency’ style, and the small but imposing mid nineteenth-century house now occupied by Lloyds TSB was elaborated with a Doric-columned classical porch, enabling it to dominate the three-sided space east of the Bank onto which it faced. The scale and quirky rustic quality of the 1897 Post Office, designed by Augustus Smith’s nephew and successor as

proprietor of the islands (Madden 1996, 31), created a significant landmark in this part of the town.

Shipbuilding continued into the 1870s and the associated slipways, timber yards, smithies, saw pits and stores were scattered over both the Porthcressa Bank and Strand areas (Davies 1988). Early photographs show an industrial building, perhaps a sawmill, adjoining cottages immediately north of the church, facing the area used for storing timber (Llewellyn 2005, 40). The severe, well-constructed terraces of single and double-fronted dwellings on Higher Strand, Well Cross and Buzza Street reflect the prosperous, industrial character of these areas in the middle decades of the nineteenth century. On the Strand these probably replaced more humble housing: a small group of the older thatched houses survived at the eastern end of the Strand, close to Carn Thomas, until at least the late nineteenth century (Arlott 1972, fig 104; Cowan 2001, 22-3).

In 1920 the Duchy of Cornwall resumed the lease on the whole of Scilly except Treco. It began a building programme on some of its properties in Hugh Town, directed by Duchy architects Sir Albert Richardson and C L Gill (Madden 1996, 14-15, 31). This included remodelling some significant buildings, among them Strand House, Newman House in the Garrison and the Atlantic Hotel (*ibid*, 33, 35, 38). The largest impact on the townscape, however, was created by replacing eighteenth- and nineteenth-century cottages and shops in Hugh Street with two new residential terraces (Laws 1980, 22). These were faced in coursed, finely-dressed granite and introduced a more ordered if rather severe aspect to the street. Further changes to Hugh Street occurred in the same decade with the construction opposite one of the new Duchy terraces of well detailed premises for Barclays Bank and the Isles of Scilly Steamship Co, the latter replacing the late eighteenth century market and council house (Madden 1996, 36).

In the three decades after 1950 Hugh Town experienced the most rapid and far-reaching period of change to the built environment in its history. From 1949 the Duchy sold the freeholds of much of its property in the town (Mumford 1967, 82). In the context of rapidly rising demand for visitor accommodation and facilities resulting from the national post-war boom in holidays and travel, the consequence was a surge of both new building and of extensions and conversions to historic buildings. In many instances, these substantially altered the character of the built environment through addition of features such as flat-roofed extensions, roof conversions and external stairways. The Council of the Isles of Scilly acquired land at Porthcressa and elsewhere for public housing (Bennett *et al*, 64, 72-3), but there was also a boom in private housing development, fuelled by demand for holiday and retirement homes. The result over the next two decades was dense development of the slopes of the Garrison, right up to the curtain wall, and large-scale building, predominantly of bungalows, on greenfield sites in Rams Valley, along the road to Old Town and on Jackson's Hill overlooking Poth Mellon. Several large bungalows were constructed just inside the Garrison curtain wall on prominent sites overlooking the town (Laws 1980, 28). New build within the core of the historic settlement was relatively limited, the most significant instances being the construction of new retail premises at the lower end of Garrison Lane in the late 1960s and a comprehensive redevelopment of Silver Street and the adjacent Porthcressa View in the mid 1970s (Laws 1980, 30).

This period also brought several new institutional buildings in the town, including the Isles of Scilly Museum, the secondary school and Park House residential accommodation for the elderly (Laws 1980, 26, 28; Madden 1996, 29, 40; Bennett *et al*, 88). Demolition of the late nineteenth century Holgate's Hotel on Lower Strand during the 1970s enabled the creation of an informal grassed promenade overlooking the eastern portion of Town Beach.

The last two decades have seen increased interest in Hugh Town's historic fabric (for example, Madden 1996; Kirkham 2003) and practical conservation measures such as the English Heritage-funded Isles of Scilly Grant Scheme introduced in 1999 (Gill Arbery, pers comm). Enhanced recognition of the significance of the historic environment and improved protection for it is inherent within broader strategies towards environmental protection, maintaining and enhancing distinctiveness and sustainable development (for example, Council of the Isles of Scilly 2004; 2005; Buchanan and Context 4D 2006; Isles of Scilly AONB 2010). Research on the historic environment was part of the conceptualisation process for a major regeneration project in the Porthcressa area (Rachel Leung, pers comm).

There is substantial further potential for improving understanding of Hugh Town's development and history through documentary research (not least a continuing search for historic visual representations), fieldwork and detailed building recording. There is also much potential for encouraging public appreciation of the distinctiveness and significance of Hugh Town as an historic settlement through enhanced interpretation and presentation.

9.6.4 The Samson buildings

The post-medieval buildings on Samson are described in 'The Samson Buildings (2) – An assessment of the post-medieval buildings on Samson, Isles of Scilly' by Eric Berry (2006), from which the following summary is taken.

In 1652, Samson was described as having been formerly inhabited but the houses and enclosures had become ruined in the preceding years. Re-occupation had started by 1669. The inhabitants lived mainly by farming and fishing, supplemented by kelp burning and piloting. The population declined after 1833 and about 1855, under economic and social reforms introduced by Augustus Smith, the island was evacuated and an (unsuccessful) deer park created on North Hill.

The late seventeenth to mid-nineteenth Samson settlement as it survives today consists of the remains of 19 buildings, at least 10 to 12 houses and cottages, six farm buildings and a boat shed. These were identified with the letters A to U in the 1992 Survey, with K and M being redundant as no remains have been found to confirm historic map evidence.

One house and a boat shed are located on the Neck of Samson (see Mason 1984) and the rest on South Hill, mainly within the deer park wall. The largest group is towards the bottom of the north slope of the hill, in a sheltered hollow, below what appears to be the only spring on the island. Another group of buildings stands on the ridge, and there are further individual buildings and small groups to the west of these main groups.

In addition to these 19 buildings a further four were identified on a map of 1829-33 by the Driver Brothers. These are a row of three buildings on the south-west slope of South Hill and a gig shed on the south-east side of North Hill. Two gig sheds are also visible close to this latter location in a 1890s photograph by Frank Gibson. No evidence of these buildings has been found in recent surveys.

The dry-stone granite wall enclosing the deer park was partly formed from existing field boundaries and partly newly constructed of stone robbed from other boundary walls.

The dating of the houses has been established with some confidence and is from the early eighteenth century to c 1835. The dating of the non-domestic buildings is less certain, due to conflicting evidence, and they are identified only as being either side of the 1829-33 date of the Driver survey. There is evidence that after

human habitation of the island ceased c 1855, the buildings were adapted for agricultural use, which probably continued into the early twentieth century.

Scillonian houses of this period were generally single storey or low 2-storey. Some of the Samson houses have evidence of upper storeys, apparently reached by staircases; others probably had lofts with ladder access. Some upper storeys seem to have been used for the storage of spars. There are examples of both one-room plan cottages and two room plans (kitchen and parlour).

Roofs were generally thatched, rope thatch being the local tradition. Scantle slating was probably used when the upper storeys of some houses were raised, and in the building of the later houses.



Fig 9.6 Consolidation work being carried out on House N on Samson in July 2006 (photo:Jacqui Mulville)

External walls and chimneys were of granite rubble, with some dressed stones for quoins, jambs and lintels. The bedding mortar was ram, sometimes incorporating lime, and in some examples pointed with lime mortar. Some external walls were limewashed. Internally an earthen render finish was applied, with lime skim. In the lower status buildings the stone was simply limewashed. Dry-stone walling was first used for the deer park wall and subsequently in the adaptation of the buildings for agricultural use.

Upper floors were apparently of softwood, ground floors sanded earth with stone flags to thresholds and hearths. Both sash and casement windows are likely to have been used and window seats were a common feature. Internal partitions would have been of timber. Fireplaces had either granite or timber lintels and some had monolithic granite jambs. There is no evidence of ovens.

The non-domestic buildings were of similar construction but simpler. Some were of dry-stone walling. They were apparently all thatched. The majority were probably designed for general use, i.e. both animal occupation and storage.

All of the buildings have lost their roofs, timber floors, windows and doors and internal partitions. Of the surviving external walls and chimneys, some have been reduced to a few courses of masonry or piles of rubble. Others survive almost to full height. Deterioration continues, mainly due to the effects of weather and vegetation damage. They have all been identified as being at high risk in the English Heritage Buildings at Risk Register.

The need for consolidation and repair of the buildings was considered in the 1992 survey (Berry and Ratcliffe 1994) and, following further deterioration, was addressed in greater detail in the 2003 report (Berry 2003). Ten general structural problems were identified and remedial action proposed for each, building-by building repair proposals were described and an overall six-year conservation programme proposed, including recording and management.

Arising from this, the most urgent consolidation work was carried out in 2006-7. Associated archaeological recording was carried out by Cardiff University, including excavation in three of the buildings, and a detailed lichen survey done (Johns *et al* 2007; Johns *et al* forthcoming a).

The consolidation works were to parts of the buildings considered to be in danger of collapse or where human action might cause movement or dislodgement of the structure. The methods used were aimed at minimal intervention and stones were left undisturbed wherever possible. Techniques included re-bedding displaced stones in resin or lime mortar, lime mortar pointing and over-pointing with ram, reinforcing unstable walls with stainless steel cable and bars resin-bonded to the stones, and reinforcing defective timber lintels with stainless steel bars.

In 2008, English Heritage provided funding to the Isles of Scilly Wildlife Trust for further investigation of suitable methods for the repair and consolidation of the ruins, including trials of typical repair methods and preparation of a revised programme of future repairs. The 2006-7 work was reviewed, an updated condition survey carried out and a long-term repair philosophy proposed in response to a vision statement for Samson drawn up by IOSWT (Parkes Lees Architects Ltd 2009-10). This statement was centred on preserving the wildlife, landscape, historical and archaeological qualities of the uninhabited island. The results of further wildlife surveys became available, covering bats, storm petrels and plants.

In contrast with the 2006-7 works, more conventional masonry repair methods were proposed, using lime mortar and *ram*. A greater level of intervention was considered acceptable including reinstatement and a certain amount of rebuilding where this would enhance the longer term stability of the structure.

In 2009, the trial repairs were carried out by specialist conservation contractors, based on a detailed technical specification, and monitored by English Heritage and the project consultants. The following year, the results were reviewed in terms of the technical performance and conservation impact. The final reports recommended which methods should be used and proposed a 3-year programme for the works (Parkes Lees Architects Ltd 2009-10).

Further action is now dependent on the availability of funding. The urgent need for repairs is undiminished.

9.7 Designed landscapes

The only example of a planned ornamental landscape in Scilly is Tresco Abbey and its garden. Created largely out of former heathland by Augustus Smith in the mid-nineteenth century, the sub-tropical garden is a Grade 1 Registered Park and Garden (Tresco Abbey Gardens). As well as being of historic interest itself, the garden contains a range of earlier archaeological features - the twelfth century

remains of St Nicholas' Priory, a sixth century inscribed stone, a Roman altar, a Bronze Age holed stone, the brazier from St Agnes lighthouse, and various other historic objects. A figurehead museum, 'Valhalla', which is part of the National Maritime Museum, is also located within the Tresco Abbey Garden.

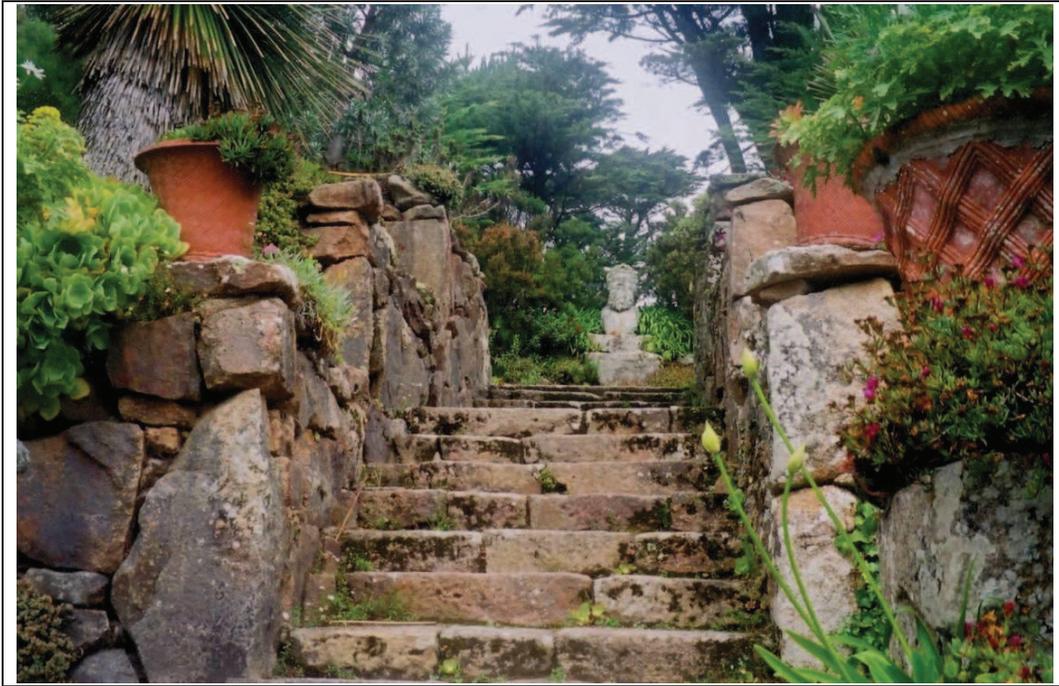


Fig 9.7 Wooden figurehead from the SS Thames, wrecked in 1841, at the top of the Neptune Steps in Tresco Abbey Gardens (photo: Cornwall Council)

9.8 Transport and communications

9.8.1 Shipping

All of the located wrecks in Scilly fall into this period. It is here that we see an enormous increase in maritime trade, the development of the British Navy, two industrial revolutions and the rise and fall of the British Empire. Perhaps, then, it is small wonder that we see a commensurate rise in the known maritime resource. There are 771 known shipping losses in Scilly in this period (Johns *et al* 2004), and although the majority of these have not been located, the list of wrecks which have been investigated is still impressive (Fig 9.8). Many more wrecks are known and visited by divers in Scilly, but most of these are iron steamers and only those where recorded recovery of material has taken place are included in the table. Many of these iron wrecks are visited regularly by the thriving dive charter businesses in Scilly and they now form an important part of the Scillonian tourist industry. This is also true of the more historic shipwrecks, with RIB (rigid inflatable boat) tours of the wrecks and illustrated slide shows being held weekly in the tourist season.

Shipwrecks located and investigated in Scilly				
Ship	Date lost	Details	Location	Publications
Unknown	1595-1600	Protected wreck site Unknown vessel, wrought iron guns, lead ingots and bronze bell fragments.	Bartholomew Ledge	(Johns <i>et al</i> 2004) (Craddock & Hook 1987)
Black Rock	?C16 th	Cannon site (c 14 small cast iron guns) Excavated and artefacts sold in the 1990s (mostly coins)	Black Rock	(Johns <i>et al</i> 2004)

Shipwrecks located and investigated in Scilly				
Ship	Date lost	Details	Location	Publications
<i>Prinses Maria</i>	1686	Dutch East Indiaman The king sent the royal yacht to recover specie (1696). Excavated 1976-7 (Rex Cowan) – large areas of intact timber were found. Artefacts were recovered. Some subsequent commercial salvage work.	Crebinnicks	(Johns <i>et al</i> 2004)
<i>Association</i>	1707	British Warship (2 nd rate) 96 guns Contemporary salvage including the Herbert expedition (1710) recovered iron and brass guns, several chests of money and reported the hull intact. Divers working on construction of Bishops Rock lighthouse saw guns and recovered shot (1847). Relocated in 1967 and subject of much <i>ad hoc</i> salvage. Contracts for salvage issued by MoD in 1967 to several salvage operators. Quantities of artefacts were recovered and many were sold at auction in Penzance and London (predominantly coins).	Gilstone	(Lotbiniere 1984) (Mace nd) (Rogers nd) (Morris nd) (Morris 1984 a) (Morris 1984 b) (Morris 1984 c) (Green 1984) (Larn 1985)
<i>Eagle</i>	1707	Protected wreck site British warship (3 rd rate) 70 guns Recovered artefacts sold at auction	Tearing Ledge	(Larn 1984)
<i>Firebrand</i>	1707	British fireship - 8 guns Salvage by the Herbert expedition (1710) Excavated 1976-7 by Roland Morris and others. Bell, nocturnal and carvings recovered Surveyed 2006-9 by CISMAS	Smith Sound	(Camidge 2011) (Larn 2006) (Morris 1982)
Unknown	?C17 th – 18 th	Seven cast iron guns and an anchor. The guns are lying close together, parallel, muzzle-to-breach suggesting they were possibly cargo. Found (2002) by Todd Stevens. Some artefacts were recovered	Innisidgen	(Wessex Archaeology 2005)
Unknown	?C17 th – 18 th	About 20 cast iron guns and 3 anchors. Possibly the site found by Morris and identified (by him) as the <i>Romney</i> (late 70s – early 80s). Site sketch by IMAG Wreck adopted (NAS) by IMAG	West of Zantman's Rock on the Crim	(Morris 1979) TS blog site NAS adopt a wreck
Unknown	Early ?C18 th	Timbers, planking and timber sheathing Excavated (2005->) by Todd Stevens Some finds recovered suggesting early 18 th C date. TS thinks this may be the wreck of the <i>John</i> (1645)	Pendratheren, St Mary's	(Wessex Archaeology 2005) (Stevens 2011)
<i>Hollandia</i>	1743	Dutch East Indiaman Salvage by Letheridge, silver (1743) Excavated 1971-77 (Rex Cowan) 50,000 silver coins and over 3000 other artefacts were recovered – some were sold but the remainder (c 90%) was acquired by the Rijksmuseum.	Gunner Rock	(Cowan <i>et al</i> 1975) (Larn 1985) (Marsden 1978) (Cowan 1982) (Engelsman 1982) (Gawronski <i>et al</i> 1992)

Shipwrecks located and investigated in Scilly				
Ship	Date lost	Details	Location	Publications
<i>Nancy</i>	1784	Two-masted packet 10 guns Salvage work by John Braithwaite in 1784 Investigated by IMAG, artefacts recovered Adopted by Stevens and Cumming under the NAS adopt a wreck scheme	Rosevear	(Stevens & Cumming 2008)
<i>Zeelilie</i>	1795	Dutch East Indiaman 26 guns Excavated 1992-7 (Hiron & Larn) Pottery and iron gun recovered	Crebinnicks	(Johns <i>et al</i> 2004)
<i>Colossus</i>	1798	Protected wreck site British warship (3 rd rate) 74 guns Salvage including Tonkin & Braithwaite (1803), John Dean (1883) Relocated by Roland Morris (1974) when a large number of pot sherds were recovered for the British Museum. Guns and anchors (whereabouts unknown) were also recovered. Stern section located 2001, stern quarter carving recovered (now displayed on Tresco)	Southward Wells	(Camidge 2001) (Camidge 2002) (Camidge <i>et al</i> 2005) (Camidge 2005) (Camidge 2008) (Camidge 2009) (Camidge 2010) (Morris 1979) (Morris 1984 a) (Morris 1984 b) (Morris 1984 c) (Smallwood & Woodford 2003) (Stevens 2007) (Wessex Archaeology 2003) (Wessex Archaeology 2007)
<i>Hope</i>	1830	Brig Salvage by John Dean (1832)	North of St Martins	(Johns <i>et al</i> 2004)
<i>Thames</i>	1841	Sailing steamer (500 tons) Salvage by Dean six weeks after the wreck	Jacky's Rock	(Johns <i>et al</i> 2004)
<i>Douro</i>	1843	Schooner (200 tons) Cargo includes copper alloy manillas (a form of west African currency) and glass beads. This type of manilla was manufactured in Birmingham in the 19 th C. Found by divers in 1970. Manillas and beads are recovered from time to time and are occasionally offered for sale on e bay.	Round Rock	(Craddock & Hook 1987)
Unknown	Mid C19 th	Protected wreck site (Wheels wreck) Discovered in 2005 by IMAG divers, some survey and recovery of artefacts. Little remains of the vessel but the cargo of 'mining machinery' (mainly iron pumping equipment) probably from a Cornish foundry (date post 1850)	South of Little Ganinick	(Wessex Archaeology, 2006a)
<i>Zelda</i>	1874	Iron steamer (1300 tons) Salvage Western Marine Salvage (c 1900)	Bryher	(Johns <i>et al</i> 2004)
<i>Schiller</i>	1875	Iron steamship, passenger liner 3421 tons. Contemporary salvage recovered gold coin. Further salvage work (Larn & McBride) in the last ten years. Finds by others reported on various websites	Retarrier Ledges	(Johns <i>et al</i> 2004)

Fig 9.8 showing known wrecks in Scilly which have been the subject of some kind of investigation and/or salvage

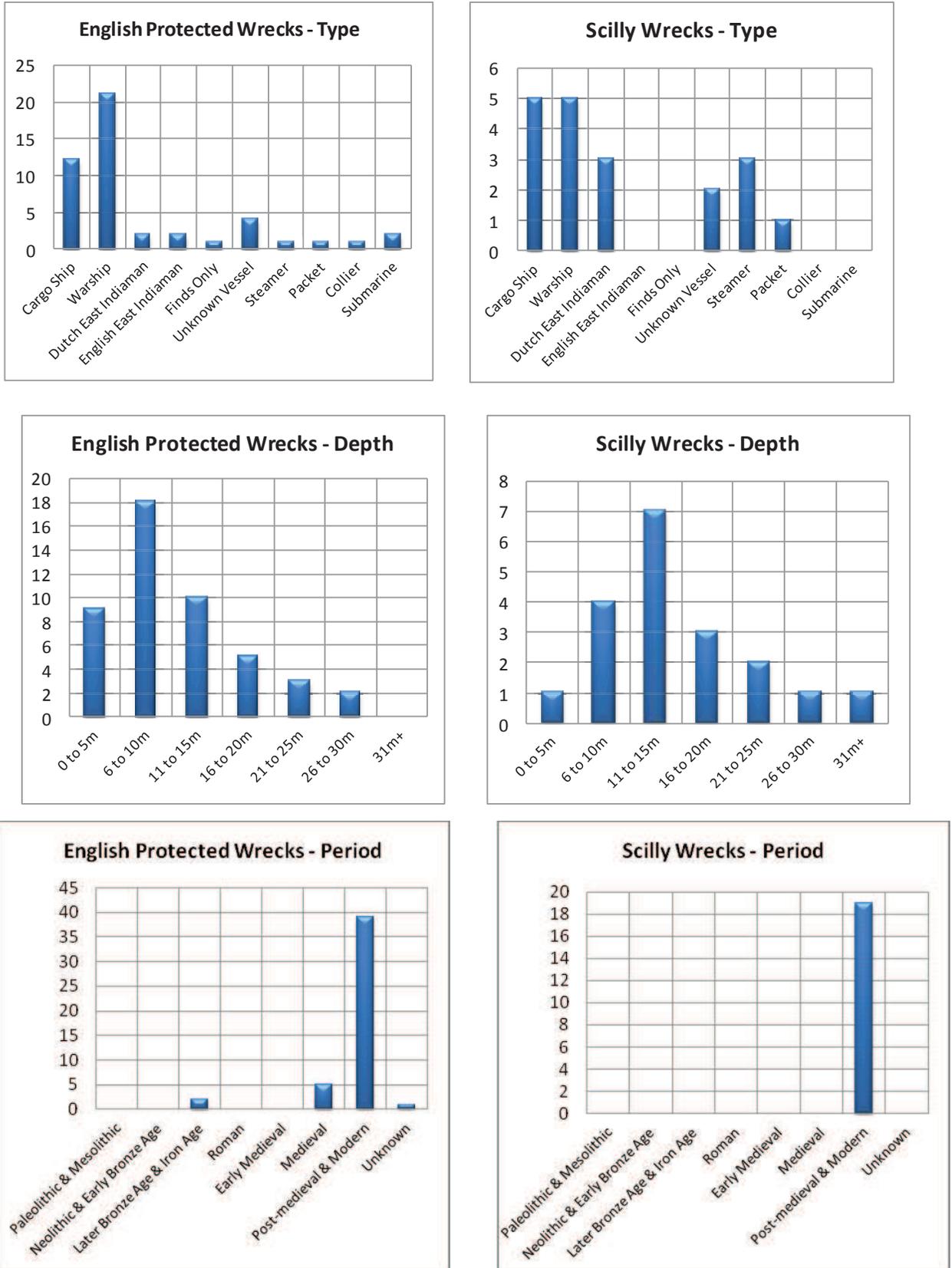


Fig 9.9 Comparison of English protected wreck sites with the investigated Scilly wrecks by vessel type, depth and period

Some of the shipwrecks in Scilly have been the subject of high profile salvage work. In some cases this has been focussed on the recovery of valuable artefacts. Wrecks which fall into this category are *Prinses Maria* (1686), *HMS Association* (1707), *HMS Firebrand* (1707), *Hollandia* (1743), *Zeelilie* (1795) and *HMS Colossus* (1798). In some cases (*Firebrand*, *Hollandia* and *Colossus*) there has been both salvage work and archaeological investigation, but the *Association*, *Prinses Maria*, and *Zeelilie* have had extensive salvage work undertaken, with recovery and sale of many artefacts but little or no publication. In the case of the *Association*, many different individuals have been involved in the recovery and sale of coin and other artefacts with virtually no account available of what has been 'recovered' or of the remaining fabric of the vessel. In the case of the *Association* there are even reports of explosives being used on the wreck (Morris 1979). Sometimes the exploitation takes place with almost no knowledge even on the part of the tightly-knit Scillonian community. The Black Rock site, where no one knew that material had been recovered from the wreck until after it had been sold at auction, is a good example of this (Johns *et al* 2004).

The Scilly wrecks are comparable with the English protected wreck sites in terms of vessel type discovered (Fig 9.9). Both groups have warships and cargo vessels well represented. The Scilly group does not have as many diverse vessel types represented – but this is to be expected as it is a smaller number of vessels ('English protected wrecks' consists of 47 sites, while 'Scilly investigated wrecks' consists of only 19 wrecks). The smaller vessels in particular are under-represented in the Scilly group.

It is interesting to compare the depth of the Scilly sites with those of the English protected sites (Fig 9.9). The mean English site depth is 11.2m while the mean for the Scilly wrecks is 15.7m. What is not clear is whether this is due to deeper conditions around Scilly, or to deeper diving activity in Scilly leading to more frequent discovery of deeper wrecks.

When we compare the period of English protected sites with those discovered in Scilly (Fig 9.9) it is clear that in both cases the majority of sites fall within the post-medieval and modern category. There are a few earlier sites in the English group, but again this is probably due mainly to the larger sample. This situation probably reflects the relative amounts of maritime activity but poorer survival of the older wrecks may play a part. Another probable factor is the nature of the older vessels: smaller, less substantial and often without large iron objects such as guns and anchors – these factors will all mitigate against discovery.

9.8.2 Navigation and pilotage

Situated at the mouth of the English Channel, the Isles of Scilly constituted a considerable hazard to shipping, especially to any vessels unsure of their exact position. Many of the shipping losses in Scilly can be attributed to this cause.

One of the most notorious shipping disasters in Scilly was the loss of four ships from Sir Cloudesley Shovell's fleet which ran into the Western Rocks off Scilly on the night of 22 October 1707. Three ships, *Eagle*, *Romney* and Sir Cloudesley's flagship *Association*, were lost with only a single survivor between them. The fireship *Phoenix* struck a rock and eventually grounded between Samson and Bryher. The fireship *Firebrand* also struck the rocks but managed to get off again. Leaking badly, she made for the beacon of St Agnes lighthouse and foundered in Smith Sound close. Over 1500 men perished in this incident, making it one of the worst disasters in British naval history. Eventually, the disaster led to the 1714 Longitude Act, offering large prizes for a practical method of fixing longitude at sea (Larn 1971; 2006; Roger, 2004).

Between 1720 and 1870 Scilly (especially St Agnes and St Martin's) was home to many pilots, who ensured that ships had a safe passage through the Islands and beyond. By the beginning of the nineteenth century piloting was restricted to fewer individuals, but in 1850 there were still a good fifteen pilot boats – cutters and gigs (Johns *et al* 2004).

Since 1990 the Scilly has been the home of the World Gig Racing Championships. The gig originated in the eighteenth century as a light-weight clinker built boat with six oars and a sail. The type is recorded as a ship's boat on board British warships from about 1760 (Lavery, 1987). The specific type used in the Scilly race is also known as the Cornish Pilot Gig, the name gives a clue as to one of its uses. In the eighteenth century pilots were used to guide ships into ports and along difficult coastlines. One point for collecting channel pilots was Scilly. It is often said that pilots competed for the job; the fastest boat would reach the vessel first and secure the job. The pilot gigs used in the World championships are said to have their origins in gigs built by the Peters family of St Mawes at the end of the eighteenth century (Gillis 1969).

The gig races are now held using boats propelled by six oars, but originally the gigs used sails as well. '*All the gigs were fitted to sail with a dipping forelug and a standing lug mizen*' (Gillis 1956). The gigs were apparently good sea boats and were used for many different tasks, not always lawful. '*The gigs were wonderful sea-boats, and often made trips from the Isles of Scilly to France. The Hope was the last of the Isles of Scilly gigs to go to France for a smuggled cargo, but I gather she was sailed most of the way. The Hope was built in the Isles of Scilly by a boat builder named Samuel Tiddy, who built the Sultan, the Leo and the Gipsy. Tiddy had served his time in the Peter's Yard at St Mawes*' (Gillis 1956).

Piloting in Scilly declined with the introduction of steamships (Johns *et al* 2004), and the hazards of putting a pilot aboard a large iron vessel from a small wooden boat are illustrated by the St Ives gig *Guide* which was lost putting a pilot aboard *SS Pentreath* when the *Pentreath* rolled onto the *Guide*. The pilot gigs ended their working lives in the early part of last century. '*The last time a six-oared gig was used to put a pilot aboard a vessel was 22 December 1938. The vessel was called Foremost and the pilot was Jack Hicks of St Agnes*' (Gillis 1969).

9.8.3 Packets and passenger boats

The need for regular communications with the mainland grew during the eighteenth century as the maritime importance of St Mary's developed. The link was provided by open boats at four to six week intervals in summer and longer in winter, sometimes it was worse and Borlase in 1752 mentioned '*seventeen weeks without any provisions whatsoever or intelligence*'. The *Prudence and Jane*, carrying essential goods from Penzance to Scilly, was driven by storms to Cherbourg in 1793 (Gill 1975, 145; Chudleigh 1992, 5).

In 1804 a mail service was established with a voluntary payment of 2d a letter, the contract being given to James Tregarthen master of the 30-ton *Hope*, at the recommendation of the garrison commander. From 1827 the mail was carried by the *Cherub*, commanded by Captain John Tregarthen, and after she was lost in 1837, by the *Lord Wellington*, on which Augustus Smith had earlier made his first visit to the islands in 1834. The first *Lyonesse*, a sailing cutter started service in 1845, commanded by Captain Frank Tregarthen, who later took command of the *Ariadne*, a sloop provided by the islanders as a connecting link between Scilly and Penzance. For about two years the *Ariadne* and *Lyonesse* ran in opposition, but eventually the former secured the mail contract worth £300 per annum, running three days a week. On a good day a cutter could make the journey in about six hours, with a light wind it could take all day (Chudleigh 1992, 5).

Coastal steamers on the Cork-London run had been passing Scilly since 1823 and excursion steamers calling since 1831. The West Cornwall Steamship Company was formed in 1857, using the steamer *Scotia* for mails passengers and cargo until their new ship *Little Western*, built in Glasgow, came into service two years later. She was 115ft 7in long with an 18ft beam and gross tonnage of 148 tons. In October 1872 she went to the aid of a disabled brigantine but was overcome by a heavy sea and sank on the Southward Well rocks off Samson (Gill 1975, 146; Chudleigh 1992, 5).

The West Cornwall group amalgamated with the Isles of Scilly Steam Navigation Co. and ran the paddle steamer *Earl of Arran*, which was wrecked on Nornour in 1872. She was succeeded by the *Guide*, the *Queen of the Bay* and the *Lady of the Isles*. The latter was built by Harvey's of Hayle in 1875 and was in service until 1904, when she hit a rock and sank off Lamorna during an excursion trip. Salvaged and repaired she went on to carry out a relief service when the first *Scillonian* (later known as *Scillonian 1*) was away for refit and also helped during busy flower seasons (Chudleigh 1992, 8). The second *Lyonesse* was also built at Hayle for John Banfield in 1888. She towed the sailing ship *Horsa*, off the rocks of St Martin's in 1893, and helped the *Queen Mab* (not listed by the NMR or UKHO), which struck the Spanish ledges. She was sold in 1918 (Chudleigh 1992, 8).

During WWI a succession of trawlers, drifters and a coaster were provided by the Ministry of Shipping to carry passengers and essential supplies to the Islands. After the end of the war the islanders had to set up their own transport arrangements. The first boat was the *Lapwing*, and then the *Argus*, a former fishery protection vessel, renamed the *Peninnis*. The Isles of Scilly Steamship Company Ltd was formed in March 1920. The first *Scillonian* was built by the Ailsa Shipbuilding Company of Troon in Scotland, she was steam driven, 177ft in length, with a beam of 28ft 6in and a draft of 10ft 6in. With a speed of 12½ knots she could carry 390 passengers and 165 tons of cargo, making her first regular trip on 2 February 1926. She 'did yeoman service' until 1956', amongst much grounding, that on Wingletang Ledges in September 1951 being the most famous. In 1946/7 a new Steamship Company ship, a second *Lady of the Isles*, was built at Poole. *Scillonian II* was launched in 1955; a second ship *Queen of the Isles* came into service in 1965. *Scillonian III*, built at Appledore, was launched in 1977. A Norwegian coaster *Gry Maritha* was bought in 1989 for all-year freight carrying and the *Lyonesse Lady*, a cargo ship for general inter-island service was introduced in 1991 (Chudleigh 1992, 12-102).

9.8.4 Maritime infrastructure

Quays

First built in 1601, Hugh Town quay is physically and functionally separate from the town but of fundamental importance to it. The structure itself records many of the town's and islands' significant milestones: initial construction accompanied the Elizabethan fortification of the Garrison and created the sheltered landing place around which the settlement formed; then refurbishment in the 1740s was part of a major expansion of the Garrison defences and military presence; the new, much larger deepwater quay was built in the late 1830s testified to Augustus Smith's aspirations for the prosperity of the islands (the curious dressed granite piers at the entrance reputed to have been intended to emphasise his proprietorial control over access); extension in the late nineteenth century was required to serve the expanding flower trade and widening in the late twentieth century to facilitate modern handling methods. The quay structure itself holds evidence of its original construction and successive phases of repair. A number of historic cannon reputed to have come from the wreck of the eighteenth century warship HMS *Colossus*, have been set into the Augustus Smith quay as mooring posts. Some of these were moved in 1994 during operations to widen the quay but others remain *in situ* (Kirkham 2003).

The following quays, slipways and piers are recorded in the Cornwall and Scilly HER: Bryher – Great Porth, Kitchen Porth; St Mary's – Old Quay (Old Town), slipway Old Town, Old Quay (Hugh Town), Toll's Island, two quays on Newford Island, Point of Fields, Pendrathen Quay, a pier at Porth Hellick, slipways at Innisidgen Hill, Pendrathen, and Porthcressa, New Quay; St Agnes – a quay and slipway at Periglis, Porth Conger, Uncle Tom's Quay, Hole of Cove Vean; St Martin's – The Porth, Old Quay, New Quay; Tresco – slipway at Crow Point, quays at Carn Near, Old Grimsby, New Grimsby; other islands – two at East Porth, Tean, St Helen's (Pest House quay), Arthur Quay.

Lighthouses, lightships and navigation aids

One of the earliest measures used to safeguard shipping was the use of lights and markers to help vessels determine their whereabouts, and to warn of hazards. The 'lighthouse chapel' on St Martin's Head continued in use through the medieval period and is shown on Captain Greenville Collins' navigation chart of the Isles of Scilly surveyed between 1691 and 1698 (UKHO B888).

Date	Location	Type
1680	St Agnes	A coal-fired lighthouse
1687	St Martins	Daymark, masonry tower
1802	St Agnes	The coal-fired lighthouse was converted to oil lamps
1849	Bishop Rock	First iron lighthouse, 120 feet high. Washed away in 1850 before it was commissioned
1859	Bishop Rock	Second lighthouse, constructed in stone
1887	Bishop Rock	Third lighthouse, constructed by encasing the second lighthouse in additional stonework. 167 feet high. Still in use today.
1887	Round Island	Lighthouse
1911	Peninnis Head	Lighthouse, iron.
1911	St Agnes	Lighthouse decommissioned.
?	St Mary's	Mount Flagon sea mark
2002	St Agnes	Tins Walbert daymark

Fig 9.10 Lighthouses and daymarks in Scilly (cf Bowley 1968)

Trinity House's involvement in Scilly began as early as 1680 when they built their second lighthouse on St Agnes (the first was at Lowestoft), superseded in 1911 by one on Peninnis Head. To aid navigation a day mark was built in 1687 on St Martin's by Thomas Ekins, the first steward of the Godolphins to reside on the Islands. The inscribed date stone has been altered to 1637 and should read 1687 (Ratcliffe and Johns 2003, 34; Greeves 2007/8, 164-7).

The Bishop Rock lighthouse is of nineteenth century date and still used. On the rocky island of Rosevear, one of the Western Rocks, are the ruins of four rectangular drystone buildings which are the remains of a blacksmith's workshop and the quarters of the men who built the lighthouse (1847-50 and 1847). There is no evidence to support the theory that these may originally have been built by Edmund Herbert's expedition to salvage the *Association* in c 1710. The most prominent building survives up to roof height and incorporates a large natural outcrop at its west end and as part of its base. There is also an anvil made from a naturally hollowed boulder, a rectangular platform made of large blocks and the remains of stone-splitting operations (Ratcliffe 1989, 66). There has been a lightship to mark the Seven Stones reef since 1841. Round Island Lighthouse was erected in 1887, around the same time as Bishop Rock was being strengthened.

There is a modern sea mark at Mount Flagon, St Mary's, and the standing stone beside it may have been used as an earlier mark. The Tins Walbert navigation transit daymark on the north western extremity of St Agnes was completed on 1 May 2002.

A detailed history of the Bishop Rock has been published recently (Stanbrook 2008) but there is considerable potential for further research into the history of other lighthouses.

Isolation hospital

The building on St Helen's known as the 'Pest House' is an isolation hospital built in 1764 to house plague cases from visiting ships calling at Old Grimsby and St Helen's Pool (after a 1754 Act of Parliament decreed that any plague-ridden ship north of Cape Finisterre heading for England should anchor off this island). The building has recently

been repaired and stabilised with the benefit of EH funding through the IOS Grant scheme administered by CIOS. Associated with the Pest House are a well and a slipway and a field system along the islands' south-eastern coastal margin bounded by post-medieval banks (Ratcliffe 1989, 66).

Signal stations

The signal station on Chapel Down, St Martin's was one of a series set up around the coast of Britain during the Napoleonic Wars to send information and orders to men-of-war waiting offshore (using a flag, pendant and four canvas balls). It was in use from 1810 until replaced by the semaphore tower on St Mary's around 1814. A two-phased enclosure surrounds the main building, which accommodated four naval operators. Heavily robbed of stone, it still retains its central chimney breast. Several ancillary buildings are incorporated in the enclosure wall and an animal pen built against its east side. The signal post (an old ship's mast) probably stood to the north-east near the base of a more recent lookout. A small field to the west may also be associated (Ratcliffe and Johns 2003, 34-5).

One of the sixteenth or seventeenth century windmills on the Garrison was used in the mid-nineteenth century by the coastguard service and then, in 1869, was acquired by the Shipping Gazette before being taken over in 1871 by Lloyds, who bought it in 1882.

Telegraph Tower, a circular granite building, was erected on the highest point of the Islands as a gun and semaphore tower was built in 1814 and only remained open for two years. Later adapted as a signal station, it was here, in 1898, that Guglielmo Marconi heard wireless signals transmitted from Porthcurno (thirty miles away in West Cornwall). The four-storeyed building, 12m high, serves as the Coastguard headquarters and weather reporting station.

Gig sheds

Gig sheds (boathouses) remain a characteristic feature of the shoreline on some of the inhabited islands. These are long narrow rectangular buildings, c10m by 3m internally, open at one end and constructed of stone-face walling. Situated just above the beaches and originally thatched, these buildings once housed pilot gigs similar to those used for racing in Scilly today (see above section 9.8.1). Eleven boathouses are recorded in the Cornwall and Isles of Scilly HER, six destroyed or covered by sand, five definitely extant. Gig sheds are a distinctive component of the historic landscape and providing a visible and tangible link to the history of piloting in the Islands.

Lifeboats

The lifeboat station on St Mary's was established in 1837, the first lifeboat arriving in 1840. Her only recorded service was on January 4 1841, when she went to the aid of the steam packet *Thames*, driven ashore on the Western Rocks. There was a lapse in the service around 1855 and it was re-established in 1874 following the disasters of the *Delaware* and the *Minnehaha*. The new lifeboat, the *Henry Dundas* was a 37ft, 12-oared pulling and sailing lifeboat. She first saw service when the *Schiller* was wrecked on the Retarrier Ledges on 7 May of the following year. A back-up lifeboat station was established on St Agnes in 1890 and was operational until 1920. The Carn Thomas lifeboat station was built in c1899 to accommodate a new Watson-type lifeboat (Bird 1991, 66-79, 202-4).

Troy Town Maze

Troy Town maze is situated close to the cliff edge on the west side of Castella Down, St Agnes. It is circular in plan, 5.6m in diameter and formed of beach pebbles. It is said to have been laid out in 1729 by a bored lighthouse keeper or his son (Nance 1924), of St Merryn, Cornwall, but may well be earlier in date and has been periodically rebuilt, latterly by Eddie Prynn in the 1980s and with work by Ben Hicks in 2011. This maze is apparently unique in Britain, resembling in pattern and construction the stone mazes of Scandinavia (Mathews 1922).

9.8.5 Telegraph and telephones

The 1868 the Scilly Isles Cable Company attempted to lay submarine telegraph cable from Land's End, but the cable was five miles too short. The cable was relaid the following year with an office in Scaden's post office. In 1875 it was moved to John Gibson's general store in Silver Street. The cable and company failed in 1877-8 and was turned over to the Post Office who laid anew cable from Porthcurno in 1886, and by 1883 inter-island cables were laid, originally for the coastguard but in 1894 the off island post offices were connected for public use. In 1938 telephone connection was established through short-wave radio. An automatic exchange on Tresco also served Bryher and St Martin's from 1957 and in May 1968 all the islands went automatic on Subscriber Trunk Dialling with 48 channels on the radio link to the mainland (Gill 1975, 154-5).

9.8.6 Air travel

On 15 September 1937 an air service was started by Captain Olley's Channel Air Ferries with the golf course as the St Mary's terminal. St Just was the mainland terminal with a bus link to Penzance. The service was stopped by the outbreak of World War Two and the RAF took over the airfield, although a mail service continued (Gill 1975, 151).

When civilian airlines were nationalise after the war British European Airways (BEA) took over the service to the Islands in 1947 and facilities were improved. In 1959, 29,100 passengers were carried. BEA introduced helicopters in May 1964, and the heliport at Penzance was built in September of that year. By 1973 the annual number of passengers was up to 68,248 and work began in June 1974 on the new airport on Salakee Down, St Mary's.

Aircraft crash sites at sea

Thousands of aircraft are likely to have been lost in UK territorial and near-territorial waters during the twentieth century. A high proportion of these losses are likely to be combat losses or accidental losses of military aircraft that occurred during WWII. The potential resource is therefore very large (Wessex Archaeology 2008b).

The number of known aircraft crash sites on the seabed as recorded by the National Monuments Record (NMR) and the HER is relatively small. The known resource is therefore relatively small. Notwithstanding issues concerning survival, the potential therefore exists for the presence of a very large number of currently unknown crash sites on the seabed and, to some extent, in the intertidal zone. Recent discoveries of previously unknown aircraft crash sites in licenced marine aggregate dredging areas suggests that there is a need for urgent national and local record enhancement in areas of seabed likely to be impacted by human activities (*ibid*). NMR records for crash sites of identified aircraft around Scilly are shown below in Figure 9.11.

NMR no	Name	Date	Aircraft type	Nation	Source	Easting	Northing
1329887	SUNDERLAND U N9045	1939	Flying Boat	British	NMR	89320	11480
1329127	SPITFIRE MK I N3101	1941	Fighter Aircraft	British	NMR	89320	11480
1357319	WELLINGTON MK IC W5631	1941	Bomber Aircraft	British	NMR	89320	11480
1318392	WELLINGTON IC DV661	1942	Bomber Aircraft	British	NMR	89320	11480
1323502	HURRICANE MK I R4228	1942	Fighter Aircraft	British	NMR	83910	6280
1329565	TIGER MOTH MK II N6598	1942	Trainer Aircraft	British	NMR	90180	10840
1352701	BRISTOL BEAUFIGHTER MK VI T5156	1942	Fighter Aircraft	British	NMR	89320	11480
1354000	WELLINGTON MK IC W573	1942	Bomber Aircraft	British	NMR	89320	11480
1354579	WHITLEY MK VII Z9524	1942	Bomber Aircraft	British	NMR	89320	11480

NMR no	Name	Date	Aircraft type	Nation	Source	Easting	Northing
1353071	WALRUS MK I W3026	1943	Flying Boat	British	NMR	89320	11480
1353996	WELLINGTON MK IC W5714	1943	Bomber Aircraft	British	NMR	89320	11480
1355229	WELLINGTON MK X HZ957	1943	Bomber Aircraft	British	NMR	89320	11480
1356762	LANCASTER MK III ED717	1943	Bomber Aircraft	British	NMR	89320	11480
1317923	SUNDERLAND MK III DD836	1944	Flying Boat	British	NMR	90180	10840
1343345	HURRICANE MK IIB BW949	1944	Fighter Aircraft	British	NMR	90180	10840
1356384	HALIFAX MK II JD176	1944	Bomber Aircraft	British	NMR	89320	11480
1340976	SUNDERLAND MK III ML770	1945	Reconnaissance Aircraft	British	NMR	89320	11480

Fig 9.11 NMR records for crash sites of identified aircraft around Scilly

9.9 Technology and production

9.9.1 Stonecutting

Evidence for stonecutting over four centuries (c 1550-1950) survives well on Scilly, although there has not been a dedicated study or detailed report on the history of stonecutting on the Islands (Greeves 2010, 151-3).

For hundreds of years most stone used for buildings was cut or drilled from natural outcrops of rock (called 'moorstones' in Cornwall) and then dressed for use as quoin stones, window frames, arches, gateposts etc. Earlier stonecutting was done by cutting slots in the stone with chisels and splitting it using iron wedges – the 'wedge and groove' technique - evidence of the use of this method can be seen on the Garrison and the roofing stones of Innisidgen entrance grave on St Mary's (*ibid*).

The 'tare (or plug) and feather' method of stone splitting was introduced in Cornwall from America in about 1800. The technique of splitting granite using plug-and-feather is described by Peter Herring in Vol 2 of the Bodmin Moor Archaeological Survey:

'A line of holes 0.075-0.10m deep and 0.10 to 0.15 apart was drilled along the intended cleavage line by giving hand-held stone borers or chisels part-turns between blows... Holes drilled in the first half of the 19th century tended to have larger diameters (0.028 – 0.035m) than more recent ones (0.015m)... Iron 'plugs', (short chisels), were placed between pairs of iron feathers reaching the bottoms of the holes. The plugs were struck in turn by a sledgehammer (thus splitting the stone)' (Herring 2008, 87-88).

Two main areas of stone cutting were recorded on Samson Flats during the CISMAS survey where large granite boulders which have been split using drilled holes with plug-and-feather splitting (Camidge *et al* 2010).

Quarries on the west side of Buzza Hill mostly date to the later nineteenth or twentieth centuries (Greeves 2010, 151). Robert Maybee records that stone was cut from Carn Thomas to build the new pier on St Mar's in 1889 (Greeves 2010, 151-3).

9.9.2 Limeburning

Demand for lime has come from two principal sources. Firstly, the development of agriculture in the nineteenth and nineteenth centuries and the need to neutralise acid soils led to an increasing demand for lime. In particular a shortage of grain in the Napoleonic Wars encouraged landowners to cultivate marginal areas of land and many limekilns were built as a result. Secondly, lime was used in the building industry for creating mortars and for limewash finishes. Lime kilns were usually built near to

harbours where limestone and coal to fuel the kilns could easily be brought by sea. By the mid-nineteenth century there was a constant trade was carried on around the south-western coasts by small ships bringing limestone from the quarries near Plymouth or coal from South Wales as ballast (Johns et al 2004, 109).

There may have been a lime kiln in Hugh Town since an early date as lime was being produced on site in 1593 for Star Castle (Brodie 2010, 35). The 1862 plan of Hugh Town by Capt Williams shows two limekilns, one on Rat Island, the other at the end of Silver Street, at the back of Porthcressa beach. There are no surviving above ground remain of these limekilns.

9.9.3 Kelp industry

The history of the kelp industry in Scilly has been summarised by Luke Over (1987). The copious quantities of kelp available on Scilly gave rise to the kelp burning industry, which was introduced to the islands in 1684 by the Nance family from Falmouth who settled on the small island of Tean for several generations. Kelp burning formed an important part of Scilly's economy for some 150 years. The seaweed was collected, dried and burnt in small stone-lined pits close to the waters edge. The obnoxious smelling process produced soda ash, which was shipped to Bristol and Gloucester to be used in the manufacture of glass, soap and bleach. After the Napoleonic Wars, increased foreign supplies of soda ash and new chemical processes for the manufacture of alkali led to the decline of Scilly's industry, which ceased in 1835. Although a hundred fires are said to have burnt at one time, the remains of only a dozen kelp pits are now visible although others become intermittently exposed in section in eroding dune faces e.g. south of Lower Town, St Martin's (Over 1987; Ratcliffe and Johns 2003, 20-21).

9.9.4 Shipbuilding

There is good summary of the history of shipbuilding in Scilly by Davies (1988) and the industry features in several accounts of the Islands (e.g. Gill 1975). Small sailing ships were built in Scilly for about a century starting in the late eighteenth century. These were all wooden sailing ships, and relatively small vessels. The largest ever built in Scilly was the *John Banfield*, a barque of 528 tons built by T Edwards in 1859.

The earliest record of shipbuilding in Scilly is contained in Robert Heath's 'Account of the Islands', written about 1750 where he records only one boat builder in Scilly. The subsequent records of boatbuilding on the islands are due mainly to the Merchant Shipping Act of 1786 which required all vessels of over 15 tons to be registered (Davies 1988). Shipbuilding on Scilly seems to have been largely confined to the island of St Mary's, with only a single vessel (*Antelope*, 1837) built on Bryher. The lack of shipbuilding materials on the islands (also attested in Heath's account) would have necessitated timber and other materials being shipped to Scilly from the mainland or further afield.

One early vessel built in Scilly was the *Grace*, built in 1779. In 1780 she was registered as a privateer, working in company with the *Dolphin* of Penzance. Between them they captured ten Dutch ships with 'valuable cargo' (1780-91) (Davies 1988). Shipbuilders would also have undertaken repair work, especially when vessels arrived damaged in Scilly. For example, in 1805 the brig *Henry* (for London with wheat), *Better Luck Still* (for Newport), *Mary* (for Plymouth with flour and beef), *Martha* (cargo of timber) and *Governor Milne* (cargo of sugar) were all 'hailed up on the beach for large repairs' in Scilly.

The first vessel of over 100 tons built in Scilly was the *Union*, a 137 ton brig built by B Banfield in 1804. Smaller vessels were also constructed; in 1815 'at least' five open boats were built for fishing. Vessels built in Scilly were mainly registered in Scilly, but some were also built for mainland owners – only seven Scilly-built ships were sold to mainland owners in the nineteenth century.



Fig 9.12 Shipbuilding (the David Auterson) on Porthcressa, St Mary's c1870 (©Gibson Collection)

Hugh Town was dominated by the shipbuilding industry for most of the nineteenth century 'with stacked timber, sawpits, stores, sheds, offices, etc. spread inland from the beaches'. The 1840s was the heyday of shipbuilding in the islands with four yards on Porthcressa alone. (Davies 1988). One of the largest yards was that of William Mumford who operated from 1821 to 1868 on a site later occupied by Holgate's Hotel on the Strand. Timber used for the shipbuilding included English oak from the New Forest, red and pitch pine from North America, white and yellow pine from Scandinavia, teak from the East Indies and Africa, and mahogany from Central America and India. This would have generated maritime traffic to Scilly, whether via the mainland or directly shipped. Thus it can be seen that at this time shipbuilding would have affected the life and economy of Scilly. The launch of ships was often recorded in the local papers and apparently the launch was often accompanied with elaborate celebrations. Scilly-built ships were of good quality and well thought of '*generally, the Scilly-built ships were very well rated...They gained a reputation of being amongst the best afloat at that time, and most engaged in foreign trade*' (Davies 1988).

By the 1860s, the demand for wooden ships was in decline. Steamships saw not only the decline of shipbuilding on the islands but also of ship ownership. With the exception of the *Little Western* (wrecked south of Samson not far from the wreck of *Colossus*) and the *Lady of the Isles*, no steamships were registered in Scilly in the nineteenth century. The last Scilly-built ship recorded was the *Gleaner*, a 171 ton brig built in 1878 (Davies 1988). The account of shipbuilding on Scilly by Davies (1988) contains a table of 163 vessels built between 1774 and 1877. This gives details of ship name, tonnage, date and builder as well as many interesting details of the ship's career. The figurehead from one of the Scilly-built ships the *Bosphorus*, a schooner built in 1840, is now in the Valhalla collection on Tresco.

The two shipbuilding yards on Town Beach and Porthcressa are jointly recorded in the Cornwall and Scilly HER. The shipyard on Bryher is yet to be recorded.

9.9.5 Tin

There was little tin to mine in Scilly and the evidence of tinworking is slight but there are records of working on St Mary's, Northwethel and Tresco. The remains on Castle Down, Tresco, are of significant interest as they include an openwork, lode-back pits and classic tinner's reservoir with earthwork dam which are probably the result of venture by Francis Godolphin in the mid-seventeenth century.

9.9.6 Flower industry

Scilly's flower industry is said to have started in a small way in c 1879, when William Trevellick of Rocky Hill farm on St Mary's sent an experimental consignment of cut flowers to Covent Garden in a hat box. Its long term success was due to two factors - the establishment of a through railway service to Penzance and steamer service to Scilly which made transportation to market viable, and investment in the industry by Smith's nephew, Thomas Algernon Dorrien-Smith, who studied the Dutch system, introduced new kinds of daffodils and narcissi to the Islands and encouraged islanders to turn their smallholdings into flower farms. The narrow, hedged enclosures (bulb strips) created for this flower cultivation form a very distinctive pattern and are the most visually striking aspect of Scilly's presently enclosed farmland (Ratcliffe 1995, 7).

9.10 Trade and interaction

9.10.1 Piracy and privateering

Leland noted in 1548 that '*Few men be glad to inhabite these islettes, for al the plenty, for robbers by sea that take their cattail by force. The robbers be Frenchmen and Spaniards*' (in Bowley 1968).

Scilly had a notorious reputation as a base for pirates until the end of Elizabethan era. On 1603 Stephen Treveleck, gentleman was interviewed as being from St Martin's in connection with piracy and receiving (Thomas 1985, 222). Contemporary records state that in 1625 there were said to be thirty Saleemen off Scilly and in 1626 it was reported that Scilly had been taken by Flemish privateers

Further research on the subject of piracy and privateering in the sixteenth and seventeenth centuries is desirable.

9.10.2 Smuggling

Smuggling was a major part of the Scillonian economy during the later seventeenth and eighteenth centuries, and both the Admiralty and the Customs Department had various controls of the coast-watching organisations. The first Custom House was built in Well Lane; Hugh Town in 1696, the second was built in c1840 and is now incorporated into the Atlantic Hotel (Johns *et al* 2004, 110).

Smuggling was made more difficult by the stationing of a protection vessel in the Islands after 1784, and by an Act of Parliament of 1790 that allowed the cost of court proceedings to be met out of the sale of seizure and also allocated revenue officers to keep a small share of the proceeds as an inducement. After this smuggling declined and became a still more risky pastime as a result of the Napoleonic Wars and the formation of the Preventative Water Guard in 1809 that patrolled coastal waters to tackle smugglers who had slipped past the existing Revenue Cruisers operating further out to sea. The Cornwall and Scilly HER records two smuggler's caches, cavities dug into the cliff face or below ground and used to conceal smuggled goods. One, a good example of its type, is exposed in the cliff face on the north-east side of Porth Mellon, St Mary's. The other, named 'Tobaccoman's Hole' is at Pendrathen although recent monitoring work suggests it is an Iron Age or Romano-British house drain (D Hooley, pers comm. to C Johns). We know of two Preventative Service vessels that were lost, *Fanny*, in 1820 and another whose name was not recorded in 1821. Six chasse-mareés, French coasting luggers often used for smuggling or privateering, were also wrecked in Scilly during the nineteenth century (Johns *et al* 2004, 110).

In addition to revenue work the Guard was detailed to assist in lifesaving after a shipwreck and was a forerunner of The Coast Guard formed in 1822 by an amalgamation of the Preventative Water Guard, cruisers and Riding Officers. In 1831 the main island station was established on the Garrison with subsidiary stations at Telegraph and on Tresco, St Agnes and St Martin's with auxiliary coastguards on Bryher (Gill 1975, 113; Cowan 2001, 13-14). In 1856 the coastguards were transferred to the Customs Department of the Admiralty. The Turk's Head public house, at Porth Conger, St Agnes was originally a coastguard house; part of the coastguard station shown on the 1889 and 1908 OS maps which also comprised a slipway, quay and two ancillary buildings within a levelled area on the cliff top. The two buildings are gigsheds, the *Obadiah & Mary*, which has been restored with grant aid, and the *Gypsy*, which now houses the *Shah* gig. The 1908 OS map also shows a coastguard lookout at Giant's Castle on St Mary's, on the cliff edge within the Iron Age cliff castle (Johns *et al* 2004, 110).

9.10.3 The nineteenth century Scillonian merchant fleet

The sailing ships built in Scilly in the nineteenth century were owned by islanders and often officered and crewed by them too. Ownership was divided into 64 shares in the English way; command often depended on the investment of the would-be captain. Such investments could be profitable and the best voyages paid 30% to the shareholders. Two shipping companies were formed in the islands. In 1864 the largest fleet of 13 vessels belonged to the Banfields, but only 18 of the 35 registered vessels in that year were built in Scilly. Cargoes included tea from China, grain from the Black Sea, guano from the Chincha Islands, wool and grain from Australia, currants from the Mediterranean and fish from Newfoundland; voyages could last several years (Gill 1975, 103-4).

The Scilly fleet faded as steamships took over, the last survivors were ketches carrying coal to the islands and other cargoes such as china clay from Fowey or onions from Roscoff. Peat was the main fuel in the islands until well into the nineteenth century, the coal trade developing from the 1860s (Gill 1975, 104-5).

9.10.4 Tourism

As well as providing a means of transporting flowers to Covent Garden, the improved rail and sea transport of the mid-nineteenth century marked the beginning of Scilly's tourist industry and this now forms the largest part (85%) of its economy with 37% of the Islands' PAYE employees working in the tourism sector. The Islands attract about 90,000-100,000 visitors per year which is about 50 times the resident population of the Islands. Repeat visitors account for 65%-75% of tourists, the majority of whom are over 45 years old. The main attractions for visitors are walking (95%), inter-Island boat trips (85%), eating out (80%), wildlife/bird-watching (60%), arts/crafts (30%) and sailing/water sports (20%). 64% of visitors choose Scilly as their main holiday with 48% staying 5-7 days, 9% for 8-10 days and 25% for 11 days or more (Isles of Scilly AONB Unit 2010, 107).

While the main visitor season has traditionally run from Easter to October, such as the 'Walk Scilly' festival in late-March and the promotion of winter breaks have begun to extend the season into the shoulder periods. An increasing number of cruise-liner passengers come ashore on Tresco and St Mary's, and Scilly also attracts thousands of visiting yachts, each contributing to the Islands' economy. In addition to direct economic benefit through visitor spending, tourism helps to sustain a broader range of shops, services and entertainment than Scilly's small resident population could support alone (*ibid*, 108).

9.11 Religion and ritual

9.11.1 Anglican

From the Reformation to the end of the Civil War there are very few direct references to religious establishments in Scilly. Today's Anglican churches were built or refounded in the 50 years or so after the Restoration (Thomas 1985, 222, 230). St Martin's church was built around 1683 by Thomas Ekins, the Godolphins' Steward in the Islands, and repaired in 1820 by George Woodley (SPCK missionary minister for St Agnes and St Martin's). All Saints, Bryher dates from about 1742 and was enlarged in 1882. The church at Dolphin Town, Tresco was built in before 1722, and a new church was built on, or nearby, the site of the old one in 1879 (Matthews 1960, 225). On St Agnes the salvage reward from a deserted French boat was used to pay for a new church in 1685, the present church is early Victorian (Thomas 1985, 230). The new church on St Mary's was built to Augustus Smith's own design by 1839.

A clergyman known as the 'Chaplain' was appointed to the Islands on 1662, but some of these spent little time in Scilly (Cowan 1991, 6). Since 1932, the Chaplain has been legally Vicar of St Mary's but with rectorial oversight of all the inhabited islands which constitute a single dispersed parish in the diocese of Exeter from 1838 to 1877 and from then on in the newly constituted see of Truro (Thomas 1985, 222, 230; Matthews 1960, 225).

9.11.2 Methodist

John Wesley visited Scilly in September 1742 and preached twice in the streets of Hugh Town. In 1788 a Wesleyan Society was formed on St Mary's by the Rev Joseph Sutcliffe from St Ives with church in Garrison Lane. Chapels were added at Holy Vale in 1815, Old Town in 1819 and Tresco in 1819. The Garrison Lane church was rebuilt between 1825 and 1828 (Gill 1975, 177-8).

In 1821 the Bible Christians, a Cornish breakaway movement from Wesleyans, sent a young missionary, Mary Anne Wherry, to Scilly. By 1832 they had chapels in Hugh Town and on St Martin's and St Agnes, with three resident ministers. In 1836-7 they built a church in Church street, rebuilt again in 1900 (Gill 1975, 178).

In 1851 there were five Anglican churches with 1,274 seats, three Wesleyans with 734 seats and four Bible Christian with 515 seats (Gill 1975, 78).

In 1907 a national merger made the Bible Christians into the United Methodists, who in turn amalgamated with the Wesleyans in 1932 to become the Methodist Church. The Scilly Union came in 1934 and eventually established itself in the former Bible Christian Church. St Martin's is the only off island which still has Methodist Church, in the care of local preachers and the St Mary's minister since the last resident minister in the 1950s (Gill 1975, 178).

9.11.3 Baptist

The Baptists arrived in the Islands in the early nineteenth century. The Rev G C Smith of Penzance who first visited Scilly in 1814 was the main agent in calling national attention to the distress of the off islands. The Baptist Itinerant Aid Society established Scilly as their first missionary station with chapels on the Strand in Hugh Town, at Maypole and on all the inhabited islands including Samson. Augustus Smith fell out with the Baptists and in 1843 'caused notice to be served at all the chapels' so that they were closed, although a new Baptist chapel was built on Bryher in 1874 which continued in use for nearly a century before being converted into private house in 1972 (Gill 1975, 178-9).

9.11.4 Roman Catholic

The Roman Catholic Church returned to Scilly in 1930 when the Canons Regular of the Lateran from Bodmin Priory took over a building in the Strand which Augustus Smith

had built as girls' school in 1860, and which became the Church of St Mary Star of the Sea (Gill 1975, 179).

9.11.5 Institutional ritual

Hugh Town had its first lodge of Freemasons in 1756, formed by the Collector of Customs, Isaac Head, who had been appointed by the Grand Lodge of England as Provincial Grandmaster of the Province of the Isles of Scilly and Adjacent Isles. He was the first master of Lodge Dolphin (no 365), reformed as Lodge Godolphin (no 281) in 1783. Its members seem to have been formed by non-islanders although a few pilots were members. Its strength diminished after the arrival of Augustus Smith, although he was a Freemason and later Provincial Grand Master of Cornwall. The lodge was erased in 1851 and reformed in 1961 (no 7790) (Gill 1975).

9.12 Social provision

'Social' provision is a wide area which touches upon other areas such as burial and cremation. While coverage by archaeologists is patchy much has been done by economic, social, cultural or popular historians and writers (e.g. Matthews 1960; Gill 1975). Many surviving structures feature in the Cornwall and Scilly HER but there is need to identify and record lost or buried elements or sites to complete the record (cf Bone and Dawson (eds), 2008, 241).

9.12.1 Water supply, sewerage and drainage

The main source of water for the Islands has always been wells, augmented by collected rainwater. Since the 1950s Hugh Town has had piped water from reservoirs on Buzza Hill and Garrison Hill to which water from wells is pumped. In 1955 only 97 out of 528 houses on St Mary's were without piped water but over third were without water closets. The Duchy installed mains sewerage in Hugh Town in 1938. Outside of Hugh Town cesspits have gradually replaced east closets. All Tresco had piped water by 1969, and water mains were laid on Bryher in that year. St Martin's and St Agnes remained without any mains facilities although a sewerage scheme for St Martin's was prepared in 1974 (Gill 1975, 164).

9.12.2 Heat, light and public power supply

Hugh Town had its first street lights in 1883. The Jubilee in 1933 was celebrated by the installation of 21 electric lights throughout the town which was made possible by the formation in 1931 of the St Mary's Electricity Supply Co Ltd which built power station in Worsall's quarry off Church Road. The South Western Electricity Board (SWEB) took over in 1957 (Gill 1975, 166).

Tresco Estate set up its own generator at the back of the home farm, linking up the entire island. The other off islands set up their own generators too, Bryher and St Agnes in 1945 followed by St Martin's. Mains electricity was finally brought to the off islands in 1985 by the Off Islands Electrification Project (Ratcliffe 1991).

9.12.3 Waste disposal, burial and cremation

Coastal communities on Scilly used the beach and tide to remove rubbish. Rubbish collections started on St Mary's after World War One with a tip on Porth Minick replaced by another on Lower Moors, which is still in use. An incinerator was installed there in 1969. On the off islands the disposal of rubbish is still largely a private affair (Gill 1975, 164-5).

9.12.4 Dealing with poverty, sickness and disability

Hard times

Life on the off islands always may have been harsh but the failure of potato and corn harvests in 1817 was disastrous, and boiled limpets became the mainstay of the diet. The 'distress period' is described in detail by Matthews (1960, 125-62) who divided it

into two periods from 1818 to 1819 and from about 1822 to 1834. There were a number of contributory factors including the curtailment of smuggling which, with pilotage and kelp burning, had become a major component of the Islands; non-agricultural economy (Thomas 1985, 253). The Revd Lane, the SPCK clergyman on Tresco alerted the authorities regarding the misery of the people on Tresco. The Baptist Minister, the Revd G C Smith raised substantial relief fund and visited Scilly distribute food and later to make an inspection of the poverty there. The Magistrates of West Penwith Hundred sent a deputation under Sir Rose Price to report on conditions. `

After much petitioning the Government made a grant, which with an improved kelp and lobster season in 1818 eased the situation. With the aim of establishing a fishery and other relief projects in the Islands nearly £10,000 was donated following a national appeal and there was temporary recovery in 1821-22. However in 1822 the kelp industry was threatened by the introduction of barilla, an alkali mainly produce in Spain, Sicily and the Canary Islands, and the lobster fishery suffered a setback when vessels refused to come from Southampton to purchase them, as they had before. The pilchard fishery set up under the relief fund had initial success but the nets were wearing out, moreover there were questions about the management of the fund.

By the end of 1822 the second period of distress had set in. The Revd George Woodley who was now the SPCK missionary for St Agnes and St Martin's drew attention the Society's and the Home Secretary's (Robert Peel) attention to the matter. *In some huts were found six or nine individuals crowded together indiscriminately on a most wretched substitute for a bed: having no other furniture than a large stone, with a sod on it, for seat, & a couple of planks serving for A table...this is comparatively trifling to the distress which had existed a short Time before, when misery and starvation prevailed to a degree that would shock the most unfeeling heart to witness'* (Revd Woodley quoted in Cowan 1991, 31). Peel called for a report as a result of which the Government sent a quantity of barley and £100 for the purchase of necessary clothing and later 100 quarters of wheat. The situation was exacerbated by the demand of payment of arrears of rent by the Duke of Leeds in 1825, the withdrawal of Government external relief and prolonged drought in the summer of 1825. Although there was an increase in kelp production the failure of the potato crop throughout the Islands in 1826 brought disaster in 1826. The distress lasted until 1834; however reports of it became less frequent.

Augustus Smith

For Augustus Smith, an energetic Victorian interested in 'improving the lot of the labouring classes', Scilly (for years misruled by the agents of absentee landlords and struggling under difficult economic conditions) represented the ideal challenge. Adopting an autocratic role, he began by reallocating farm lands, which had become minute and scattered by sub-division, and introduced a system of inheritance by which land passed only to the eldest son, all other offspring being forced to find alternative employment. Smith encouraged this by financing existing and new local industries, building schools on all the main islands and making education compulsory (thirty years before this became law on the mainland). He broke with tradition by becoming a resident landlord and erecting his house not on St Mary's but on Tresco, next to the remains of the medieval priory, around which he created a sub-tropical garden out of bare moorland. In fulfilment of a condition of his lease, in 1838 Smith built a new quay (connecting Hugh Town Old Quay with Rat Island) and St Mary's church (Ratcliffe and Johns 2003).

By 1834, when Augustus Smith took over the lease of Scilly, a vulnerably small population, chronic water shortage and fragmented farms made life on Samson very difficult. As part of his economic reform Smith initially encouraged people to leave and in 1855 evicted those few who remained. Their ruined houses and stone-walled fields lend a sad air to South Hill, which Smith later enclosed in an abortive attempt to create a deer park (Ratcliffe and Johns 2003).

We only know about very limited aspects of Augustus Smith's administration. For instance, we still know very little about his actual impact on landholding, the re-shaping of farms and creation of new boundaries, for example, or the impact of his policies on other aspects of the historic environment. He is believed to have made building leases which provide the context for the 're-building' of Hugh Town from about the 1830s, for example, but apart from a couple of lines in Matthews (1960) the process is not documented.

Health services

In Robert Heath's time (1750s) there were no doctors on the Islands except for the occasional Garrison surgeon. A 'society of skilful aunts' cured with herbs and limited medical supplies and were midwives, dentists etc. Resident doctors arrived in the nineteenth century (Gill 1975, 165).

An influenza epidemic led to the formation of a Nursing Association which set up two nurses on St Mary's and Tresco to supplement the doctor's work (Gill 1975, 165).

The introduction of the National Health Service in 1948 brought many improvements to island facilities. By 1950 there were two resident doctors and resident dentist. Special hospital cases were sent to the mainland but six specialists attended the island hospital. In 1953 health clinics were opened on St Martin's and St Agnes in addition to the long-established district nurse's cottage on Tresco. The hospital was extended in 1965 and there has been a special medical launch since 1972 (Gill 1975, 165-6).

9.12.5 Emergencies and law and order

Scilly has been comparatively free of serious fires although Holy Vale and Mount Todden were burnt down in the eighteenth century and one side of Hugh Street was destroyed by fire. The only fatality of modern times was in 1944 fire at Borough, Tresco. Until the late 1930s only bucket chains and extinguishers were available although there were calls for voluntary brigade after a fire in Hugh Town in 1930. During World War Two Auxiliary Fire Service crews came over and trained local men, by that time there were eight hydrants in Hugh Town (Gill 1975, 168-9).

When the National Fire Authority reverted to local control in 1948 the Council of the Isles of Scilly became a fire authority, the smallest in Britain, and without any professionals (Gill 1975, 169). The fire station was formerly at the east end of Porthcressa and is now the Dibble & Grub café (Leung nd [2010]). The fire station is now located on the Porth Mellon industrial estate.

On the off islands heath fires have always been a problem. When a house burnt down on Bryher in 1955 a fire engine was taken across from St Mary's, subsequently each island was supplied with modern portable fire-fighting equipment and volunteers trained (Gill 1975, 169).

Scilly has long had reputation for being law abiding and many doors are still left unlocked. Each parish vestry used to elect its constable annually. After a spell of drunkenness and fighting between visiting fishermen in 1861 the constable of St Mary's was given a uniform and a small wage and was required to patrol the town and ensure the public houses closed at 11pm (Gill 1975, 168).

In 1892 a Joint Police Committee was set up of the council and magistrates. This body amalgamated with the Cornwall Constabulary, which supplied first one and then two constables based in the Police House on the Parade with a cell at its back. With the regionalisation of police forces Scilly came under the Devon and Cornwall combined police authority and in 1974 had a sergeant and two constables in a specially built police station in Hugh Town (Gill 1975, 168). Magistrates meet in the Town Hall to hear minor cases.

9.12.6 Education and learning

Godolphin set up charity schools in the Islands in 1747. The first interest of the SPCK was educational and the society established schools in the six then inhabited islands by 1774. These were essentially 'dame schools' with mainly aged teachers, although there was Duke of Leeds School in Hugh Town whose master was sufficiently educated to be clerk to the Council of Twelve, and in 1808 the SPCK missionary on St Agnes (Gill 1975, 179).

After the SPCK departure Augustus Smith built new schools on all the islands. In 1851 there were ten schools with 755 pupils and Smith made attendance compulsory in 1856 by charging parents 1d a week but 2d for children who stayed at home. In Hugh Town he built a new infants' school (now the Church Hall) and a girls' school behind the Strand (now the Roman Catholic church), the boys remained at Carn Thomas which was rebuilt in 1878 (Gill 1975, 180).

With the Education Act of 1902 the Council of the Isles of Scilly became the local education authority. Carn Thomas was enlarged and took back the infant and girls' departments in 1906; children of Grammar School standard were boarded on the mainland. The Butler Education Act of 1944 which required Secondary education for all meant building a second school on St Mary's or sending all over children over 12 to the mainland. The new school opposite Carn Thomas started as a secondary modern in 1965, but was opened as a Comprehensive in 1958. Off island children boarded and went home at the weekends and sixth formers were boarded on the mainland (Gill 1975, 181-2). The new Five Islands School Base at Carn Gwaval St Mary's, which enabled sixth-form education on the Islands, was opened by the Queen in 2011. There are still primary schools on St Agnes, St Martin's and Tresco.

9.12.7 Recreation and leisure

The main inter-island sport is gig racing (see above section 9.8.3).

Cricket was introduced by Augustus Smith and there are cricket pitches on the Garrison, St Mary's, Tresco, St Agnes and St Martin's. There are two football teams, formerly called the Rovers and the Rangers and now the Woolpack Wanderers and the Garrison Gunners, both based on St Mary's. There are tennis courts on the Garrison and on St Agnes and St Martin's. The St Mary's golf club was founded by Dr Brushfield in 1904 (Gill 1975, 171-2).

St Mary's first cinematographic show was in the Town Hall in 1898. Film shows were begun in the Bible Christian Hall in 1927 and the first talking movie was shown in the Atlantic Hotel in 1934 by Bertie Ashford in partnership with Harold Solomon he took over the old Wesleyan chapel and installed 16mm talking cinema projectors, in 1950 the building reopened as the Plaza, under new management from 1963 it eventually closed in early 1973 (Gill 1975, 173). The building was bought by the Council in 1975 and demolished within a year. There is an account of the history of the cinema in the monthly magazine 'Scilly Now & Then' nos 41 and 42.

Colour slide shows of various aspects of Island life – natural history, archaeology, shipwrecks, diving etc – are still a popular summer evening entertainment for visitors.

The social centres on the off islands were the Reading Rooms. St Martin's Reading Room was built by the islanders in 1932 (Gill 1975, 173-40).

9.13 Defence and warfare

Military matters are the subject of a number of publications, for instance 'Scilly at War' which focuses on the Civil War and World Wars I and II (Bowley 2001). The post-medieval and modern defences have very recently been studied in the well-researched English Heritage publication 'Defending Scilly' (Bowden and Brodie 2011). In addition survey reports have recently been published by English Heritage and papers written on Scilly's Tudor defences and Abraham Tovey (Brodie 2010; Brodie nd), The collapse of

the north-east corner of Lower Benham Battery in a storm in October 2004 (Johns and Sawyer 2005) provided an impetus for the development of a Conservation Plan for St Mary's Garrison, which was completed in 2010 (Johns and Fletcher 2010).

There are also original sources such as J P Osborne's Scillonian War Diary 1914- 18 (1990).

9.13.1 Fortifications

In the mid-sixteenth century the defence of Scilly, strategically important as the most westerly anchorage and the first landfall for naval ships and merchantmen assumed a new importance resulting in the building of fortifications to guard the main approaches, harbours and anchorages. Erected between 1548 and 1554, they include King Charles' Castle, Tresco and three blockhouses; one on the site of Cromwell's Castle and another south of Old Grimsby, both on Tresco, and a third on the north east coast of St Mary's. A fort, Harry's Walls, incorporating newly-introduced angled bastions, was begun but never completed on Mount Flagon, overlooking St Mary's Pool, and guns were mounted on The Hugh (perhaps in an earlier castle on Mount Holles or in a fort on the south side known as *The Folly*). Henry VIII maintained a garrison at Ennor Castle, from 1544-47 and during Edward VI's reign it continued to defend Old Town harbour, being used as the armoury for the main body of the garrison which by 1554 consisted of 150 men with five light cannon (Leland in Choep 1918, 23).

Removal of debris and trial excavation at King Charles' Castle were carried out in 1954 (Miles and Saunders 1971, and see above section 9.3.1) and the 1627 earthwork on the landward side of the castle was surveyed by the Cornwall Archaeological Unit in 1992 (Ratcliffe 1993).



Fig 9.13 Star Castle and the Garrison (photo: Cornwall Council)

From the late sixteenth century the defence of Scilly has centred on the Hugh, the southern promontory of St Mary's which became known as The Garrison and which attracted to its isthmus the island's main settlement, Hugh Town, a shift of focus from Ennor Castle in Old Town. The site was chosen to counter Spanish privateering and invasion threats because it controls deep water channels to Scilly's main harbour. With advice from Robert Adams, England's coastal defence expert, Star Castle was built by

the Governor Sir Francis Godolphin for Elizabeth I in 1593 (Fig 9.13). A curtain wall and batteries across the land approach followed with ancillary buildings within, and a quay in the harbour below. Most of the cliff top earthworks and gun platforms date to the Civil War (1642-1651 in Scilly). Scilly was Royalist in sympathies, The Garrison surrendered in 1646, but the islands rebelled to become the last Royalist stronghold, the base for up to '800 men, besides an immense number of officers', before final defeat in 1651. Most of the earthen breastworks and batteries around the main islands' coasts date from this period. Cromwell's Castle on Treco, erected in 1651-2, is believed to have been built on the site of a Tudor period blockhouse.

In 1990 CAU carried out recording of the early batteries of the Garrison following severe storms (Parkes and Ratcliffe 1990). A survey of Star Castle was undertaken by Keystone Historic Buildings Consultants in c1992 (Cox and Thorp 1993), and a watching brief was carried out there during cable laying in 1992 (Young *et al* 1993). In May 2006 English Heritage carried out an evaluation of the seventeenth century breastwork and a gun platform at Doctors Keys to inform the Conservation Plan (Fellows 2007)., which was completed in 2010 (Johns and Fletcher 2010)

During the Spanish Wars between 1715 and 1750 the Garrison was refortified under Abraham Tovey, when the walls were extended round all but the north-west coast, inside the old breastworks, Elizabethan structures were rebuilt and new buildings added. The sequence of construction is detailed in Bowden and Brodie 2011.

During the Napoleonic Wars (1793-1815) the Garrison was rearmed and '*Great soldiery kept up on all the Islands*'; stations were built on St Martin's and St Mary's, signalling via ships to posts along England's south coast. A proposed roadstead for men-o'-war in St Mary's Roads, which would have entailed dredging the harbour is shown on a chart of 1808 but was never realised. After Waterloo the Garrison was occupied by army invalid gunners who maintained the barracks and cliff top gardens, but the fortifications with their ancillary buildings were neglected or rented out by mid-century.

During the period 1890-1910 the Islands were intended as a signalling and refuelling base in the event of war with France. Scilly was refortified principally by the massive Woolpack and Steval batteries and associated works on the summit of the Garrison, including three DELs (Defence Electric Lights) which were rangefinding searchlights below Steval Point and Woolpack Batteries. Extending south east in a straight line across the rocky shore from Southward Well Point, Samson is an extant line of upright stone posts used to calibrate the range finder at Steval Battery.

The Garrison was not extensively remodelled to maintain its defence of Scilly in the twentieth century; some of the new works such as a WWI kite balloon observation base and WWII firebreaks and barbed wire entanglements have left very little trace. Adaptions of existing fortifications ranged from the occupation of Star Castle to the skilful concealment of World War II pillboxes in eighteenth century batteries such as the Woolpack Battery. Twenty-seven pillboxes were built around the coast of St Mary's.

Charles Thomas has studied the derivation of the names of the batteries on the Garrison (Thomas 1979). The Garrison SMR was updated in the early 1990s and a popular leaflet with circular was produced (CAU 1992), there is also an AONB guided walk leaflet (Sawyer nd) and one by Archaeological and Archival and Mainmast Conservation (2008). Paul Ashbee (1985) considered that '*Scilly's Garrison, as progressively modified and developed down the years, is probably the most impressive work of its kind extant in England*' while Richardson and Gill (1924) described the Star Castle as 'one of the most perfect Elizabethan structures in existence'.

9.13.2 Flying Boat stations

The Cornwall and Scilly HER records two World War I flying boat stations, in Scilly At Porth Mellon, St Mary's all that survives above ground is a concrete base, at Abbey Farm, Treco, some original 1916-18 buildings survived and also a concrete base, iron railings and slipway and an earlier wooden slipway and footprint of buildings. These

were affected by the redevelopment of Abbey Farm in 2006-7 (Wessex Archaeology 2006b; Sawyer 2008).

9.14 Scientific dating

9.14.1 Radiocarbon dates

The single radiocarbon determination listed below in Table 9.14 below has been calibrated using OxCal 4.1. Previous modelling of dates has not been used and all are expressed at the full 95.4% confidence level, rather than to the period which the date may be weighted (for example at 89%). This means that the calibrated dates in the tables may vary significantly from the publications where they appear.

Lab Ref	¹⁴ C age BP	CAL AD @95%	Site	Context	Reference
GU-2520	280±50	1463-1953	Big Pool, St Agnes	Upper band of peat & organic sediment	Scourse 1986

Fig 9.14 List of post-medieval radiocarbon dates

9.14.2 OSL dating

Optically Stimulated Luminescence dating of quartz from marine and aeolian deposits on St Agnes was carried out in 1999 (Bannerjee *et al* 2001). Proposed tsunami-laid deposits at Big Pool provided ages of 230±40 and 380±60 years; both are consistent with an expected age of 244 years (the Lisbon earthquake occurring in 1755). An OSL age of 6±3 years was obtained on a modern sub-aqueous beach deposit. These results suggest that the OSL signal in the tsunami-laid quartz was completely reset before deposition, and that these sediments can be dated accurately by OSL dating techniques. Sand dunes at Bergecooth, 250 m south of Big Pool, were also dated using OSL. These ages indicate phases of aeolian activity at ~ 300a and 1000a in the Scilly.

OSL dating was carried out on modern quartz as a control during the Lyonesse Project in 2010. OSL ages of 3±2 were obtained from samples from Crab's Ledge and Bathinghouse Porth, Tresco (Aberystwyth Lab Nos 161/LPTR1-M and 161/LPT3-M) (Roberts 2012).

Location	Lab no.	Context	Material	OSL Age BP	Calibrated date (95% confidence)
Big Pool, St Agnes	BP-90S	marine and aeolian deposits	Quartz	380±60	
Big Pool, st Agnes	BP-22S	marine and aeolian deposits	Quartz	230±40	
Nr Big Pool, St Agnes	SA-295	modern sub-aqueous beach deposit	Quartz	6±3	
Crab's Ledge, Tresco	161/LPTR1-M	0.005 ± 0.005 down core	0.005 ± 0.005	3±2	
Bathinghouse Porth, Tresco	161/LPT3-M	0.005 ± 0.005 down core	0.005 ± 0.005	3±2	

Fig 9.15 List of post-medieval OSL ages, expressed as years before AD 2010, rounded to the nearest 10 years

10 A Research Agenda for the historic environment of the Isles of Scilly

Edited by Charles Johns

10.1 Introduction

The Resource Assessment has provided an overview of the current state of knowledge and demonstrated the depth and diversity of Scilly's historic environment. This Research Agenda sets out to identify a) gaps in the current state of knowledge, b) the potential of the historic environment resource and research priorities, and c) key research themes and aims. The structure and research themes of the SHERF Research Agenda are based on the South West Archaeological Research Framework (SWARF), to which it relates (Webster 2008). The SHERF research themes and aims are also presented chronologically by period in Section 10.4 to make them more accessible for those researchers who specialise in certain periods or for artefact types e.g. Roman ceramics.

10.2 Research Themes and Aims

10.2.1 Methodology

Some of the research aims can be classified as a need for improved methodologies; not questions about the past itself but suggestions to improve the way we find out about it. In some periods this extends to the very discovery of sites and deposits that could be studied; in early prehistory because of geomorphological change and later because of a lack of diagnostic artefacts. There are also techniques that, once developed, are not applied routinely when they would provide very valuable basic data.

Research Aim 1: Extend the use of proven methodologies for site location and interpretation, and encourage the development of new techniques.

1. There is a need to improve the existing Lidar coverage of Scilly. The existing resolution is not really good enough for archaeological purposes and it would be good to have better resolution flown at 0.5m or less. In addition to its use in surveying relatively small topographic detail indicating the former presence of earthworks, Lidar intensity can be used to show variations in soil moisture and thereby look for ditches and palaeochannels that may have no surface visibility using other techniques.
2. There is a need for further geophysical survey to be carried out for both land and marine sites. The efficacy of using marine geophysical survey to prospect for and map submerged palaeoenvironmental deposits has been demonstrated by the Lyonesse Project (Charman *et al* forthcoming).
3. A systematic programme of fieldwalking would help to identify potential archaeological sites (see below Research Aim 5). The 1985 Electrification Project, for example, demonstrated the potential for identifying archaeological sites in Scilly from artefact distributions (Ratcliffe 1991).
4. There is a need for synthesis of existing data from all periods to better understand the resource and relevant research questions and for excavation using modern techniques and recording systems order to address these. Comparatively few excavations have been carried out in the Scilly since the early 1970s while over the same time period investigative and analytical techniques have markedly improved (e.g. Optically Stimulated Luminescence (OSL) and Amino Acid Racimization (AAR) dating).
5. Greater use should be made of ceramic petrology, lipid analysis and other techniques to track pottery production and use in all periods.

6. Considerable potential exists to study life-time mobility, diet and health through re-analysis of human and animal remains. Extensive analysis of oxygen and strontium isotopes, in both people and animals, should revolutionise our understanding of patterns of mobility during these periods, which is especially important with an island population.
7. We should consider revising or updating the way wrecks on the seabed are recorded. Terrestrial archaeology utilises a context-based recording system but underwater – the recording is usually based on a plan or survey. Although this is mainly due to the constraints of operating underwater, we should consider the use of context-based systems underwater and improved position fixing, carefully appraising the gains made in the record but setting these against the additional time taken to complete the recording.

Synthesis

There is a need for up to date, thematic and period-based synthetic studies which draw on the 'grey literature' resource.

Research Aim 2: Encourage works of synthesis within and across periods, settlements, monuments and areas.

1. It would be extremely useful to draw together and disseminate existing information on earlier Bronze Age grave assemblages from Scilly. This may facilitate a better understanding of material sequences, object biographies (such as the presence of heirlooms), the expression of social identity through material culture, and bodily display.
2. The Later Bronze Age is lacking in synthetic treatment and thus interpretation often remains at the site level. This is exacerbated by the large and increasing amount of data for the Middle Bronze Age, particularly for settlements. A systematic Scilly-centred review of Middle and Late Bronze Age and Iron Age data would significantly increase our understanding of the period, particularly if it is integrated with the often good burial data and well-documented metalworking traditions.
3. Synthesis is needed for the Roman period in Scilly – settlement forms, material culture, external contacts, the Nornour shrine, Mount Holles altar, etc. See 10.3.1.7/9 and 10.
4. During the entire historic period, the current interpretive framework is still conditioned by the meagre historical narrative. Greater weight needs to be attached to multi-disciplinary work with colleagues in areas such as landscape studies, historical geography, economic history etc.
5. Much important work remains unpublished and the contents of 'grey literature' are not always easily accessible. There is, therefore, an urgent need for synthesis to develop our understanding of work already completed and to encourage the development of a broader archaeological view of the period.

Spatial and Temporal Biases

The Resource Assessment exercise has highlighted the uneven coverage of some periods in the Islands. Some of this is due to a bias towards areas with good evidence at certain periods but, as Robinson (2007, 5) has pointed out, much of the fieldwork carried out in Scilly until the later twentieth century had a 'vacational aspect', resulting in a piece-meal approach to research. This has also resulted in the reiteration of the study of a number of recurring major themes, namely

- Entrance graves
 - The submergence and paleoenvironmental history of the islands
 - Porthcressa-type cist graves

- Early medieval hermitages
- The post-medieval and modern defences of the Islands

Research Aim 3: Address apparent "gaps" in our knowledge and assess whether they are meaningful or simply biases in current knowledge.

1. The early prehistory of Scilly is poorly understood and we do not know whether the Islands were permanently or seasonally / sporadically occupied.
2. We know little about non-ecclesiastical early medieval settlement.
3. The systematic scrutiny of Scilly's historic buildings, advocated by Paul Ashbee (1986), remains to be carried out.
4. The archaeological investigations which have taken place on the Garrison have mainly been directed towards the military works and almost nothing is known of human activity on the Garrison prior to the late sixteenth century.
5. Apart from a reputed drop in population, we know very little about life on Scilly, especially on the smaller islands, during the century following the Civil War

Community Involvement

Public interest in the historic environment has never been higher and there is a need to respond to this. Increased public involvement is a requirement for many funding streams and also raises the profile of the historic environment with decision-makers. Many people already volunteer their time and enthusiasm to care for and interpret the historic environment resource in Scilly and to draw in other resources to help them achieve their goal. They do this through the Isles of Scilly Museum (IOSM), the Family History Group, and the Isles of Scilly Wildlife Trust, or on an individual basis. They have a vital role in conserving the historic environment resource, in spreading appreciation for the historic environment and an enormous potential for improving public understanding of it. During the last two years many people have expressed interest in forming a community archaeology group on Scilly which should be taken forward.

Research Aim 4: Encourage wide involvement in archaeological research and present modern accounts of the past to the public.

1. The IOSM plays a vital role in engaging the public with the historic environment of Scilly.
2. There is considerable public interest in forming a Community Archaeology Group in Scilly; however someone needs to organise it and insurance for field activities is also an issue.
3. Initiate community monitoring programme of archaeological sites threatened by coastal erosion (see Research Aim 21)
4. Establish a database of sites threatened by coastal erosion and a co-ordinated coastal monitoring programme.
5. The Isles of Scilly Family History Group has huge potential to help address Research Aim 40 'Use archaeological and historical evidence to better understand Scillonian identity through time'.
6. There is scope for a structured programme of recording oral history.

Recording

Many of the artefacts that survive from the past are not found in the secure contexts of an archaeological excavation. Whether found by beachcombers, field walkers, dog-walkers, or earlier excavators, these finds need to be collated to provide the widest possible evidence-base for study. Responsibility for collection, recording and preservation of archaeological remains needs to be recognised as a fundamental role held in common by all archaeological institutions, including archaeological societies.

There is scope for far greater collaboration in carrying out research and applying standards of approach, process, preservation and dissemination of the resulting information.

Research Aim 5: Encourage the study of artefact scatters using traditional and innovative methodologies both in the field and on previous collections.

1. Attention should be paid to lithic scatter resources, in particular the specific evaluation and/or re-evaluation of 'grey collections', and the development of appropriate interpretive methodologies which maximise the potential value of this landscape-scale, off-site resource. The 'grey collections' principally consist of artefact assemblages from both museums and private collections. Emphasis should also be given to assessing the presence and potential size of the non-flint lithic component of Scilly's archaeological record.
2. Lithic scatter artefacts remain problematic, given the frequent absence of independent dating and the tendency of much of the material to be highly undiagnostic. There is therefore a need to review the relationships between the resource, the Portable Antiquities Scheme (PAS), the IOSM and the RCM, and consider developing or modifying strategies to promote the accurate reporting of lithic material and providing (where possible) artefact identification services.
3. Approaches to the investigation and interpretation of lithic scatters have become rather mechanical. We need to think of new forms of interrogation and interpretation, perhaps working within finer temporal and spatial scales.
4. Mapping of the scatter of previously recorded medieval pottery, especially if accompanied by systematic fieldwalking, may well have the potential to make a contribution to understanding the location of early medieval and medieval settlement and farmland.
5. The presence in Scilly of unusually large amounts of medieval French pottery such as the assemblage on the seabed in Tresco Channel is of interest – the possibility that the remains of a medieval wreck (c 1300) exists there cannot be discounted. Given the apparent absence of any boat or ship remains in Scilly before the post-medieval period, this merits further study. The need for more systematic study of pottery from the shipwrecks of Scilly has been highlighted. Where possible, this should be integrated with existing projects on these sites (see below Research Aim 12).

Research Aim 6: Encourage the accurate reporting and identification of stray finds in ways that benefit archaeological research as a whole.

1. We need to publicise the finds reporting process more widely; the IOSM has a useful Code of Conduct leaflet which could be updated.
2. New finds are always being made, and this combined with the rolling out of the Portable Antiquities Scheme will continue to offer new opportunities to examine the depositional contexts and associations of new finds. This will also represent a great opportunity to increase our understanding of older 'isolated' or 'stray' finds.
3. The data produced by the Portable Antiquities Scheme needs to be critically reviewed to assess its quality – both in terms of identification and locational accuracy. There is an urgent need to link PAS data to HER records for Scilly and see if it tells any stories other than chance loss! Specifically anything that enhances the Cornwall and Scilly HER should be encouraged
4. The potential for identifying (and the costs of dealing with) any surviving context for the finds also needs to be considered.

Research Aim 7: Improve the recording and utilisation of archaeological collections and other information sources.

1. The Isles of Scilly Museum should be recognised as the appropriate repository of archaeological material and archives by all involved in the process of acquiring archaeological evidence in Scilly. However specialised storage requirements (e.g. for metalwork) and adequate space (e.g. for large stone artefacts) may present future issues which may need to be kept under review.

Transitions

Most archaeological research is concerned with the tangible evidence of cultural change. It is perhaps easier to recognise that activities and artefacts have altered than it is to understand the significance and meaning of continuity; ironically the periods that cause us most trouble are characterised to a large extent by a lack of change. However, significant transitions between one period and another are used too often as academic boundaries. Study, both across and between boundaries, should be encouraged to define and explore the changes that occur in these transitional periods.

Research Aim 8: Address our lack of understanding of key transitional periods

Understanding of the processes behind, rates of change, and local consequences of the Mesolithic–Neolithic transition is hindered by a long-standing scholarly divide between people working on these periods. There is a need for a ‘joined-up’ approach to the events of the late fifth–early fourth millennium BC. What does the apparent absence of ‘complexity’ in Scilly’s late Mesolithic tell us about the Mesolithic–Neolithic transition? We need to know more about the extent and chronology of coastal change during this period, given the evidence elsewhere for the coastal focus of latest Mesolithic communities. Understanding this critical transition will also require the excavation of the right sorts of contexts, for instance in the vicinity of Old Quay, St Martin’s. How do we expect ‘transitional’ sites to manifest themselves, and can we confidently identify transitional lithic assemblages? We need to establish better dated chronologies to improve understanding of this crucial period in British prehistory. High resolution analyses are needed over a 1000-year period. Specialists should also look for evidence of domestication in deposits considered to be late ‘Mesolithic. Further information could be obtained from a study of insect evidence for browsing under woodland conditions around the transition (suggestion from Robinson 2002).

Key transitional periods are:

- The Mesolithic/Neolithic transition.
- The Neolithic/Beaker/Early Bronze Age transition.
- The Middle/Late Bronze Age transition.
- The Late Bronze Age/Iron Age transition.
- The Romano-British/early medieval transition.

Hidden Resources

Many of the archaeological resources of the Islands lie not in the ground but in the stores of museums, archive offices, contracting units, the HER and in individual collections. Study of these records and artefacts can be far more cost-effective than excavation or other fieldwork. Museum collections need constant reworking to ensure that material is reassessed and where appropriate reclassified in the light of recent fieldwork. Skilled identification of any artefact type of any period can only derive from such research. Some of this work can be very low cost and on-going (such as the work of the South West Implement Petrology Committee); other programmes can be more intensely dedicated to artefactual or ecofactual assemblages or involve the reinterpretation of previous fieldwork. The insights which have come from quite brief re-assessments of the pottery archives from Maen Castle and Gurnards Head (in West Penwith), for example, have identified very much longer sequences from these sites

than would have been predicted from their characterisation as 'cliff castles' or were recognised by the original excavators (Nowakowski and Quinnell 2011, 329-30, 373-4).

Museums contain not only collections of chance finds but also some large excavation archives that have never been published. The publication project on the 1971 excavations at East Porth, Samson (Neal forthcoming a) shows that it is possible to revive and reinterpret these old excavation projects but it is a challenge to find funding for assessment, analysis and publication.

Research Aim 9: Improve knowledge and study of all relevant museum collections and archives.

1. Many collections are often catalogued under very general classifications because of lack of skilled identification. Important diagnostic artefacts, such as post-Roman imports or post-medieval coarsewares, may lie unrecognised. Similarly many finds made on sites primarily of a different period are not recognised for their importance as part of an overall pattern of finds.
2. As well as the excavation archives in museums there are also extensive artefact collections that deserve study; recent work on quernstones (Shaffrey 2006) shows the potential for this kind of study.
3. Study of lithic and faunal remains assemblages from excavated sites.

Research Aim 10: Improve access to, and synthesis of 'grey literature'.

OASIS, the online access to archaeological investigations, and the Cornwall and Scilly HER provide vital indices and portals to the growing amount of archaeological information but this is biased towards information generated by the planning process. Mechanisms need to be agreed to access the growing volume of 'grey literature' that is accumulated by colleges, universities, museums and others and to signpost new and ongoing projects in Scilly

Research Aim 11: Identify and bring to publication key unpublished excavations.

There exists a legacy of important unpublished work from Scilly including:

1. George Bonsor's notes on his work in Scilly between 1899 and 1902.
2. Bryan O'Neil's archive. The Roman-period houses excavated by O'Neil on St Martin's need publication to modern standards.
3. The 1956/60 excavations at East Porth, Tean (Thomas 1960b).
4. The 1971 excavation at East Porth, Samson (Neal forthcoming a).
5. The 1971 excavation at Bar Point, St Mary's (Butcher and Johns forthcoming?).
6. Results of the 1996 Coast Protection Scheme recording at Porth Killier, St Agnes (Ratcliffe *et al* forthcoming).

Artefact Studies

There has been a move away from 'traditional' artefact studies over the past few years which has led to a slowing in the growth of our understanding of this fundamental class of archaeological evidence. There have also been advances in analytical techniques which have shown the potential for improved provenance studies, with their implications for improved understanding of trade and social relations. Most of the effort appears to be concentrated on the development of novel techniques with few resources available to follow this up with large numbers of routine analyses that provide the quantity of data that we need. These techniques could be more widely employed, given better dissemination of their benefits and the availability of appropriate personnel and equipment.

Research Aim 12: Widen our understanding of Scillonian material culture of all periods.

Ceramics (general)

1. A well-illustrated guide (with colour photographs), identifying the main types of pottery (prehistoric to modern) to be found on Scilly would be especially useful (for researchers as well as beachcombers).
2. In the last 15 years a key advance in south-west English pottery studies has been the development of sophisticated chemical characterization of pottery fabrics by Inductively-Coupled Plasma–Atomic Emission Spectroscopy (ICP-AES) and Inductively Coupled Plasma–Mass Spectrometry (ICP-MS) (e.g. Hughes 1998; 2002; 2002–3; 2003; forthcoming). For much of Somerset, and for parts of Devon and Dorset, there is now a database which gives sophisticated fingerprinting of fabrics and aids greatly in more precise interpretation of sources and fabric types. Little published work of this type has been conducted on Scilly or on mainland Cornwall. This kind of analysis, once regarded as too expensive for routine pottery studies, is now comparable in price to thin-sectioning; the two techniques need to be used together, and to be combined with traditional identification of pottery types and forms, to get the best results

Prehistoric and Romano-British Ceramics

1. Compile a list by period of all sites with ceramics referred to in the literature but which have not received full publication. Check what is now held in museums and what appears to be lost. Subsequently develop a project design for publishing material, checking against the above agenda.
2. Given the easy sea access, the possibility of imported vessels occurring at all periods is very real and emphasises the importance of good petrological input into all ceramic research work.
3. The analysis of lipids in ceramics has great potential on Scilly for establishing the proportions of marine resources in diet with any chronological changes.
4. The work of identifying basketry, cordage, etc, from Scillonian ceramics now initiated by M A Owoc should be encouraged with results published with clear illustrations. This provides an unusual opportunity to throw light on organic artefacts which do not survive in most contexts.
5. Publish, with appropriate petrographic studies and illustrations, all the Early Neolithic pottery assemblages from the Islands. There are currently no related radiocarbon dates and, as far as is known, no material associated with these assemblages has suitable dating material. It is of great importance that potential dateable material is looked for among any future assemblages located. Currently the range of forms present is restricted. Study of any future assemblages should pay special attention to forms and decoration to establish whether a Scillonian ceramic identity is evident at this time.
6. There is currently a gap in ceramic sequences which, on mainland data, extends from c 3300 to 2000 BC. It is highly important that any possibilities of future finds of material from this period be followed up and the ceramics studied in detail and dated. The question of Scillonian ceramic identity is again important for this period.
7. For entrance graves the material from Bonsor's excavations now located in the British Museum needs publication supported by petrological analysis. This should establish the full understanding of Trevisker-type material from Porth Hellick which has so far been overlooked, and also possibly indicate whether mainland imports were involved.

8. The new radiocarbon dates bone from the Knackyboy Cairn burial sequence should do much to provide a firm basis for chronology for the Scillonian Bronze Age pottery from entrance graves. Any other opportunities to provide dates for material from entrance graves, cairns or cists should be followed up.
9. Any sequence of types in Scillonian Bronze Age pottery from settlements is currently unclear, largely because the largest and most important site, Nornour, appears to have much material redeposited in structured contexts. Any future opportunities of examining, with supporting dates and petrology, pottery from settlement sites with short phases of occupation will be very important.
10. Unpublished settlements excavated by O'Neil, whether with reputed Scillonian Bronze Age pottery or with that of the 1st millennium BC, need publication with supporting petrology and radiocarbon dates if material is available.
11. Material from the Late Bronze Age and the Early Iron Age is currently sparse on the Islands. Full investigation and publication of any sites found with material of these dates is important.
12. The Middle and Late Iron Ages appear to have assemblages following mainland styles, with Island clays gradually giving way to mainland, gabbroic, fabrics by the end of this period. A more detailed establishment of these changes is important for indications of the Islands' integration with mainland cultural practices. The assemblage from the west side of Nornour excavated by Dudley could be usefully re-examined.
13. For the Roman period any future sites need publication with full petrological work. This will enable better understanding of whether the full suite of gabbroic forms present on the mainland is represented or whether local based cultural preferences were evident. This should also provide better information about the provision of ceramics from beyond Cornwall and from the continent.

Early medieval pottery

1. We need to publish, with appropriate petrographic studies and illustrations, all the early medieval assemblages from the Islands. These ceramic assemblages should also be searched for any internal residues that would also be suitable for radiocarbon dating.
2. Petrographic study and dating of future assemblages is also very important. This will enable better understanding of whether the full suite of vessel forms present on the mainland is represented on the islands or whether local cultural preferences are evident. This should also provide better information about the provision of ceramics from beyond Cornwall and from the continent.
3. Discovery of further early medieval sites would aid in our understanding of the development and sequence of early medieval pottery. Any assemblage that appears to have a combination of imported and native wares should be studied in detail and scientifically dated.
4. It needs to be determined if pottery production actually occurred within the Islands during the early medieval period. This is important, certainly with respect to the adoption of grass-marking, which may have originated in Scilly.
5. Publication of the East Porth, Tean, site (Thomas 1960b) is crucial to furthering our understanding of the development of early-medieval ceramics (especially the introduction of grass-marking) and the interaction between native and imported wares. This has significance not just for the early medieval period within the Islands but is critical for helping to elucidate the situation occurring in mainland Cornwall (see Research Aim 11).
6. The excavation at Mays Hill, St Martins (O'Neil nd d), needs to be revisited and published in full. Recent finds have indicated that the site may be of much

greater extent than originally thought. With foreign imports of Mediterranean ware and both D and E wares, and its situation overlooking the potential harbour of Nornour Sound, further field survey and excavation is recommended to explore the full potential of this site (see Research Aim 42).

7. The occurrence of mainland forms of pottery in a granitic fabric is often taken as a pointer towards local manufacture. However, this has never been fully tested petrographically. Though ceramics found on the mainland are predominantly in a gabbroic and mixed gabbroic fabric, some granitic does occasionally occur. What the petrography needs to determine is, were the granitic wares found on Scilly manufactured out of local granitic clays, or have the vessels been imported from granitic sources on the mainland?
8. A further complicating factor is that recent work on material from Gwithian has shown that raw, unfired gabbroic clay was shipped out of the Lizard area to be manufactured into pots elsewhere, at times being mixed with local clays or filler. Does this explain the gabbroic vessels found on Scilly? Or were these actually imported as complete vessels from the mainland. Petrological examination of the inclusions with the pots may help to answer this.

Medieval and post-medieval ceramics

During the medieval and post-medieval periods the Isles of Scilly were not, as far as is known, producers of ceramics, but a peripheral market for potters making and selling their wares in west Cornwall and beyond. Progress in understanding the pottery of the islands is inseparable from that of west Cornwall. Although contexts on the islands will have a part (sometimes an important one) to play in building up an overall picture, progress needs to be made with the bigger picture if we are to get further in understanding the pottery of Scilly.

1. How does the overall pattern of pottery consumption in the medieval and post-medieval periods compare with that from mainland Cornwall, and with the ceramics of collections from other islands in the English Channel and Bristol Channel?
2. Since the 1960s detailed petrological examination, leading to the accurate identification of pottery types and sources, has been the foundation of progress in medieval and later pottery studies in many other parts of Britain. No pottery from Scilly of these periods has been the subject of this kind of study. Although hand-sorting of sherds and identification of fabrics solely in hand specimen can go some way towards characterizing the Scilly collections, analyses now need to be based on a more precise footing. Petrological study – either by means of thin-sectioning in the manner now traditional amongst archaeologists, or by identification of hand specimens in the manner developed so successfully elsewhere in south-west England by Dr Roger Taylor (e.g. Taylor 2002; 2003; 2008) – is fundamental to progress. A programme comparing samples from the islands with kiln material on the mainland, such as that from Mawgan-in-Meneage, St Germans and Lostwithiel, is much needed. The medieval pottery may prove to be more receptive to analysis of this type than post-medieval, but even post-medieval coarsewares of the sort commonplace in early modern Cornwall have research potential in this field.
3. Reference collections are widely seen as valuable aids to identification, both by specialist researchers and by members of the wider public; many archaeological units, museums, independent researchers and university departments hold such collections. In the case of Scilly, such a tool would be especially useful to the wider public. The possibility of building a resource which could be accessed in the two museums which hold major collections from the islands (IOSM and RCM) should be explored. This might make a project suitable for external funding. The question of holding a reference collection of thin-sections for Scilly and for

the rest of Cornwall should also be considered; at present the only South West collection with Cornish material is held at Exeter Museum.

4. Understanding of chronology is limited. Charles Thomas' pioneering work on the post-Roman pottery for the Scillies was a fine achievement, but the later medieval part of the sequence was poorly dated, and relied principally on general understanding of the picture of medieval ceramics emerging in mainland England. Decades later, this problem still obtains; dating is based largely on evidence from far away, such as Launceston Castle, Exeter, Plymouth and Bristol. Fundamental uncertainties include: the date at which bar lug pottery is superseded by medieval Cornish micaceous cooking pots or jars; the date when wheel-thrown vessels were generally adopted in the later Middle Ages; the period when jugs came into use; the date when bowls came into use.
5. Some uncertainties in site dating may be resolved by evidence from sites outside the region where better conditions survive – a point illustrated by the discovery of Cornish bar lug pottery from waterlogged contexts in Waterford, Ireland, in contexts dated by dendrochronological evidence to the end of the eleventh century and early twelfth centuries. Nevertheless, more local evidence is essential to make progress.
6. Thought should be given to the question of whether a programme of radiocarbon dating of residues from carefully chosen vessels, both on the islands and the mainland, would make progress with this question. This, however, is unlikely to resolve the problems, for example, of distinguishing pre-Conquest from twelfth century material, since fluctuations in atmosphere will probably produce inseparable results for these two periods (J Meadows, pers comm to J Allan).
7. In view of the high research potential of ceramics from the wrecks around Scilly (arguably far exceeding that of the Islands' landward sites, especially for the post-medieval period), the chaotic state of artefact recovery, conservation, study and ownership which has characterized such sites in the past, and continues to do so to some extent, should be a matter of great concern. The fact that it is at present very difficult to find any solid information about the overall volume and research value of the ceramics recovered from wrecks around Scilly is a clear indication that the situation is unsatisfactory. This is, of course, a large and complex problem; the strong likelihood of the loss of valuable information in the last generation and the potential value of future finds are emphasised here.
8. The existing publications relating to the medieval and later pottery of the islands hardly serve the subject: the report on the principal medieval collection (Dunning 1965) is now 45 years old; the sole attempt at a general survey (Allan 1993) is quite brief; more recent work is buried in grey literature and some finds have escaped any form of publication. Publication of key sites, a priority highlighted in the Mellor report (1994), remains an important goal; in this case the newly-discovered medieval wreck in Tresco Channel, and re-publication of the medieval material from St Helen's, are the most pressing cases. A fresh general review would be very desirable, but it needs to be based on fresh analytical work.
9. One of the stated aims of the Scilly research framework is to *'encourage a more active role amongst visitors and residents by putting the historic environment to the fore as a visitor attraction and thereby enhancing the quality of visitors' experience'*. It also seeks to *'enhance opportunities for intellectual access to this rich resource by the islands' community and by the broader visiting and academic communities'*. In the field of medieval and later finds the local museum with its engagement in the community offers important opportunities to advance these aims. In the case of Scilly, the IOSM currently has an active role in building up ceramics collections – particularly because a striking feature

of the medieval and later pottery of the islands is the extraordinary amount of material recovered by beachcombers, much of which we may presume is never seen by an archaeologist. The IOSM has an admirable policy of encouraging finders of this kind of material to show and sometimes display their finds at the museum, and has taken advantage of visiting specialists to build up an instructive display of the common and exotic wares found in this way. This practice has brought some significant finds (e.g. the possible medieval wreck from Porthcressa) to the fore (see Research Aim 4).

10. Consideration should be given to the way in which the results of this work find their way onto the Scilly HER. Since it would not be feasible to retain the masses of industrial pottery of the last 250 years, development of a collection and retention of the most significant material can only be undertaken if they are based on a good working knowledge of ceramics.
11. Cornish medieval and later coarsewares form the bulk of the collection on medieval and later sites on Scilly. A programme of petrological and chemical study in which the finds from the islands are examined as part of a wider programme with material from the mainland is needed; in Cornwall work in this field lags behind other parts of the south-west.
12. Imported ceramics are an exciting aspect of the island assemblages, including as they do various sorts of ceramics which are unusual throughout the British Isles. The publication of a report drawing together, analysing, discussing and illustrating these finds is a highly desirable and achievable goal.
13. E ware has been identified on a number of sites on Scilly, and is well known to pottery researchers and excavators in Cornwall. Many of these identifications are probably secure, but in instances where later medieval occupation overlies post-Roman sites, for example at Hillside Farm, Bryher 1999 (Quinnell 2002-3), and East Porth, Tean (Thomas 1960), the complicating problem arises that some of the material previously identified as E ware may really be Normandy Gritty ware of the twelfth to fifteenth centuries. The latter material may reasonably be expected on Scilly; it is the most common coarseware on the Channel Isles. In view of the high academic interest in E ware, this problem deserves exploration. Since quartz inclusions are common, chemical analysis probably represents the best chance of resolving this problem. Chemical examination of material of related type from Padstow, *Hamwic* (Southampton), Exeter and elsewhere provides an initial database which could be built up by fresh analyses (Hughes 2002-3).
14. In its current national review of the state of ceramic studies, which highlighted many areas of concern about the state of the discipline, the *Research Framework for Post-Roman Ceramics* (2011) outlined the need for a fresh Statement of Best Practice. This document does not yet exist but is promised soon. It will provide archaeologists engaged in the planning process with guidance about national standards for reporting medieval and later ceramics from commercial sites. Adoption of its standards throughout the country should make a significant difference to the quality of pottery studies throughout England.

Lithics

1. The unprovenanced nature of much of the IOSM lithics archive means that more detailed study would only be of limited value. However, there are assemblages held at the RCM from excavations such as Halangy, Knackyboy and Little Bay, which have not been examined in any detail or published (see Research Aim 9). These would benefit from full analysis, adding to our knowledge of the sites, and would also provide an opportunity to examine full working lithic assemblages. The information that could be gleaned from the examination of assemblages containing a full range of debitage and tools would add significantly to our

knowledge of the prehistory of the Islands. Debitage, the waste material produced during tool manufacture, will provide information about the nature of knapping technologies and has the potential to clarify the typological dating of particular tool types.

2. Aside from the examination of excavated lithic assemblages, there are a number of known findspots which could be systematically investigated in order to recover complete *in situ* assemblages. At Old Quay on St Martin's, lithics have been recovered from a possible buried land surface that is eroding from the cliff edge. A further scatter of lithics has been recovered from a garden on the south side of the island, occupying a discrete area; this has produced a small assemblage of material including two scrapers. Both assemblages would benefit from assessment, perhaps using a test pitting strategy to determine the extent and nature of the *in situ* material (See Research Aim 8) Fieldwalking in available fields could also be undertaken to identify further scatters and determine their distribution within the landscape (see Research Aim 5).

Stonework

1. Stone artefacts are especially common from Scillonian settlements of all periods but have received little detailed study and, until the last few decades, all but the most obvious artefacts were probably not recognised. Querns, for instance, continued to be used on Scilly until comparatively recently and many of the rotary quernstones to be seen on the islands are probably, therefore, post-medieval/modern in date.
2. The long-term curation of large stone artefacts, such as querns, from excavations is an issue that needs to be addressed. It has generally been the practise to incorporate such stones into ornamental features on the island on which they were found. The main problem with storing querns is their size and weight. Inside, smaller fragments can be stored in boxes. Large fragments and complete stones should be placed on low shelves, preferably slatted, not on the floor where they are at risk of being knocked and are also more difficult to move. Outside, querns should ideally be stood on stone or concrete, or preferably on gravel and kept free of vegetation; complete rotary quernstones can be leant against a wall. Stones kept on grass or earth are in danger of becoming overgrown, suffer from staining where they are bedded in the ground and are also subject to eventual damage from water penetration. The general problem with storage outside, however, is that the surfaces will become weathered. Also, the dished grinding surfaces of saddle querns if kept upright may tend to collect water. This is generally the most stable and safest way to stand them, however.
3. One of the overlooked classes of stone in Scilly is pumice objects, of which Katharine Sawyer has located five during her research. These are the only examples known in England and deserve more detailed study.

Research Aim 13: Use innovative techniques and methodologies to ask sophisticated questions of post-medieval to modern artefacts and buildings.

1. There is a much work still to be done at the basic typological level. It has been demonstrated that a low level of resources continuously applied to, for example, pottery studies can achieve a great deal. Such an approach should not be lost among demands for resources for larger scale programmes.
2. At a higher level the value of the recording and study of artefacts in context has been demonstrated but rarely applied. Locations and assemblages should be identified for specific study to address issues such as identity. Where themed issues are being addressed opportunities should be identified of applying these techniques as well as recording structures.

3. Chemical characterisation of pottery fabrics by ICP-AES and ICP-MS has not been done for Scilly and would be good step forward, as would increased petrological analysis (see above Research Aim 12).
4. Lipid residue analysis, particularly on Neolithic ceramics and Bronze Age cremation vessels to understand their use prior to burial.
5. Stable isotope analysis of human and animal bone to place Scilly in context with research being carried out on other island groups.
6. Genetic and morphometric analysis of faunas to look at the effects of island isolation,

10.2.2 Science

The routine application of archaeological science can bring great benefits, particularly in the areas of chronology and past environments. These are issues where the study of the past has a direct relevance to modern issues such as climate change.

Dating

Many areas of research are hampered by the lack of the detailed and accurate chronologies that should be available with modern techniques. More radiocarbon and other scientific dates are required on well-contexted samples, or internal pottery residues, where the date obtained will accurately reflect the archaeological event. Existing dates need to be re-evaluated by a stringent examination of the taphonomy, composition and final contexts and associations of the samples on which they were measured. This should include the collation of radiocarbon determinations available from watching briefs, evaluations, excavations and environmental recording projects, many of which are unpublished, exist in 'grey literature', or in geological or geographical publications. The example of the (re)dating programme of the Early Neolithic enclosures of Southern Britain and Ireland (Whittle *et al* 2011) shows what can be achieved by the combination of rigorous sample selection and Bayesian modelling of the results. Targeted keyhole excavation could provide an efficient technique for obtaining dating and environmental samples.

Research Aim 14: Increase the use and improve the targeting of scientific dating.

1. The expanded application of recently developed and/or modified dating techniques, principally optically stimulated luminescence (OSL) and amino acid ratio (AAR) to open-landscape deposits. Recent research for the Lyonesse project has indicated that OSL dating is particularly effective on sand lenses in peat deposits (Roberts forthcoming). Use of these techniques will aid contextualisation of Scilly's terrestrial, intertidal and subtidal palaeoenvironmental deposits.
2. Scientific dating for the recent Lyonesse Project almost doubled the previously existing radiocarbon measurements for Scilly. There is a need for more radiocarbon dates from excavated sites to provide a better definition of key transitional phases (such as the beginning of the Neolithic, the Neolithic/Beaker/Early Bronze Age transition, and the change from the Earlier to the Later Iron Age).
3. A suite of radiocarbon determinations from the remaining baulk at the east end of the settlement at Nornour might provide secure dates for the earliest phases of settlement there. The baulk is being eroded by the sea and this is considered a priority.
4. The Late Bronze Age is poorly defined chronologically for several reasons. Burials with accompanying grave goods are very rare, in contrast to the situation in the Early and Middle Bronze Age, perhaps because excarnation was practised increasingly frequently. Pottery styles become less distinctive, and

pottery use may have been less common. There is a lack of radiocarbon dates and a lack of a systematic collation of those that do exist for this period.

5. In the medieval and post-medieval periods diagnostic material culture becomes more commonplace but there is a need to link scientific dating techniques to documented medieval sites such as Ennor Castle and Tresco Priory.

Past environments

As well as providing information on the conditions in which people lived in the past and their relationships with nature, environmental archaeology has a valuable part to play in one of the great debates of our time: the evidence for environmental change and the likely impacts of global warming.

The Isles of Scilly contain wide expanses of shallow subtidal and intertidal environments flooded by rising relative sea levels during the late Holocene. It has long been known that the islands in their current form are a result of past marine transgressions that flooded early sites. The archipelago is therefore a valuable laboratory for studying continual sea level rises within an historical context.

Research Aim 15: Improve the quality and quantity of environmental data and our understanding of what they represent.

1. We need to improve consistency in sampling, assessment and analysis for all types of palaeoenvironmental evidence.
2. A range of context types should be sampled for plant macrofossils. For example, sampling only obviously rich deposits misses evidence for crop processing and leads to misinterpretation of site function and plant use.
3. We should maximise sample size by targeting areas where preservation of animal bones (including micro vertebrates) is good. However, this needs to be balanced to make sure that context related variation is also understood (Serjeantson forthcoming).
4. We should look at the environmental evidence that exists in new ways, such as by conceptualising what we would expect to find under different scenarios and then interrogating the archaeological record. This approach could particularly lend itself to a new understanding of past farming.

Research Aim 16: Target specific soil and sediment contexts for environmental information, including a focus on sand deposits and the preservative qualities of midden deposits.

1. Targeted use should be made of pollen analysis to investigate particular archaeological questions or gaps in knowledge and not just carried out on long sequences "because they are there". Examples include the Mesolithic to Neolithic transition; the timing and duration of Neolithic and Bronze Age clearance and reforestation; the development of heathland and the immediate post-Roman/early medieval period. High resolution dating strategies will be needed to allow detailed interpretation and not restricted to top, middle and base of sequences unless judged to be appropriate.
2. Little is known about when, how and where soils were artificially improved in the past. Are there temporal trends in soil improvement? Micromorphological studies can begin to address these questions and carbon isotope and geochemical studies can also be used in some circumstances. Scilly, being an archipelago, should be particularly amenable to this type of study because of extensive use of seaweed and bracken as animal litter, subsequently composted and used as manure or soil dressing.
3. Colluvial and alluvial sequences as markers for forest clearance and agricultural intensification need to be exploited. In order to do this both types of stratigraphy need to be investigated in more detail than at present and much

better dated, rather than being written off as archaeological and palaeoenvironmentally sterile. Magnetic and geochemical techniques can be used to source such deposits and suggest why deposition occurred, while OSL dating is very useful for dating inorganic sediments if they are of suitable type.

Research Aim 17: Improve our understanding of insect faunas and what they can tell us about past environments.

The following specific targets for insect studies are based on the SWARF Research Agenda (Webster (eds) 2010, 284-5), taken from Robinson (2002), but the opportunities to address them are limited to wet or waterlogged deposits.

1. Insect faunas where conditions are most Atlantic.
2. Carbon and oxygen isotope measurements on insect faunas from sequences which suggest climate change, to give direct measurements for dating and temperature.
3. Insect assemblages that can be closely related to the elm decline.
4. Early–Middle Bronze Age insect faunas.
5. Insects from Iron Age cliff castles and coastal settlements in relation to aspects of the synanthropic insect fauna.
6. Post-Roman/early medieval insect faunas.
7. Medieval insect faunas.
8. Insect faunas from Hugh Town.
9. Comparative studies of assemblages from modern graveyards which can be related to the surrounding habitats from which they were derived.
10. The development of improved techniques of data analysis to cover more aspects of the fauna.

Research Aim 18: Continue to collect evidence for past climate change and sea level changes together with their effects on peoples' relationships with landscapes and the sea.

1. Establish a database of sites threatened by coastal erosion and a co-ordinated coastal monitoring programme (see Research Aim 4).
2. Opportunities should be taken to further understand the scale and nature of sea level change throughout Scilly. This will involve multi disciplinary biostratigraphic analyses and high resolution dating programmes.
3. The probable continuation of Mesolithic archaeology beyond the present coastline highlights the need for topographic modelling, deposit and site prediction, and palaeoenvironmental reconstructions to be extended below the current tidal limits to improve understanding of the landscapes occupied by Mesolithic populations.
4. The submerged forests and intertidal peat bed and organic soil resources of Scilly are an endangered resource, with widespread evidence for their ongoing erosion. These locations contain well preserved proxy data for prehistoric and later environments that have only rarely been studied in south-west England. It is important that the remaining resources continue to be studied in detail before they are destroyed.
5. In light of the importance of Mesolithic coastal strategies (as indicated by key midden sites such as Westward Ho! Devon (Balaam *et al* 1987), the extant terrestrial resource should be integrated with the marine resource (such as submerged forest landscapes and artefact/ecofact material. Particular focus

should also be given to the palaeoenvironmental evidence for possible coastal management during the Mesolithic (such as reed beds management).

Research Aim 19: Improve our understanding of Palaeolithic and Mesolithic landscapes (landscapes and seascapes).

Scilly provides an opportunity to study the Mesolithic/Neolithic transition, for example at Old Town Quay and Par Beach, St Martin's, and in the submerged and coastal peat deposits where there may be relevant preserved stratified artefactual or ecofactual material. An example is the calf's tooth from the peat on Par Beach, which has been radiocarbon dated by English Heritage's scientific dating team.

10.2.3 Settlement

Changing patterns of land-use and settlement form a key component of any study of the past. The size of the resource means that innovative techniques will be needed to study it at an appropriate scale. There is also a need to recognise activity that took place off traditional 'sites', including the locations of boundaries and also understand the locational forces that produce settlement patterns in different periods.

Hugh Town on St Mary's is Scilly's only town. The town developed after the building of Star Castle in 1593, but here has been settlement in the area of what is now Hugh Town from at least the Bronze Age. There is potential in Hugh Town, and in the Islands' smaller settlements, for concentrations of buried deposits containing well-stratified artefacts and often well-preserved environmental evidence.

Although the buildings of Scilly have been studied and written about more than many other parts of the British Isles there is much more to be done that is in accordance with the very special interest of the archipelago as a community with a very distinctive character. Each building type is worthy of further recording and investigation. This would best be carried out as a phased programme over several years with as much community involvement as possible. Better understanding and presentation of the special character of the buildings of Scilly would be good for its economy as well as for the conservation of its buildings.

A particular aspect of the present heritage protection situation in Scilly is that whilst the Listing process has been interpreted in a flexible way with respect to some of the buildings there are still gaps in the coverage with respect to the rarer building types. For example, it is a serious omission that no gig sheds are individually listed, except for the ruin on Samson that is protected within the Scheduled area. Listing criteria need to be applied consistently but always in Scilly with its unique context as a major consideration. Conservation Area status for all the islands has enabled considerable enhancement of many of its buildings through national and local funding schemes in recent years. Improvements have included replacement of inappropriate windows and the reinstatement of scantle slate roofs. This work is a credit to those concerned and has changed the perception of what the buildings represent. One result of this is that some buildings that might have appeared marginal for listing now look better than some of those that are already listed.

Certain key points of recommendation are as follows:

1. All building types deserve further recording and investigation
2. Documentary sources should be further consulted to unravel some of the finer details about island life of the past and with respect to the buildings that are involved
3. Enhancement schemes should be encouraged and supported
4. New-build opportunities should be assessed very carefully to ensure that the special architectural character of the islands is not compromised.

Research Aim 20: Improve our understanding of prehistoric and Romano-British settlements, monuments and landscapes.

1. Ceremonial landscapes – we need to reassess the Early Bronze Age monuments in their landscapes and detailed survey needed of the two or more stone rows recorded on the north end of Tresco.
2. The fogou on Peninnis Head, discovered in 2001, is an important and unique addition to Scilly’s range of later prehistoric/Romano-British monuments and requires a detailed survey.
3. Structured deposition – structured deposition and ‘middening’ (the ritualistic re-working and re-deposition of midden deposits) have scarcely been considered in regard to prehistoric settlement in Scilly and would be rewarding subjects for future work.
4. Longevity and change
5. Vernacular styles
6. Coastal settlement – we need to investigate the inland extent of cliff-exposure sites.
7. Changing coastline
8. Field systems - Scilly’s prehistoric field systems are undated and it is analogy with mainland systems that leads to their provisional attribution to the Middle Bronze Age or Iron Age and Romano-British period. The results of the Lyonesse Project suggest that that the intertidal field systems are Early Bronze Age.

Research Aim 21: Improve our understanding of early medieval settlements, religious buildings, monuments and landscapes.

1. Our knowledge of early medieval settlement in Scilly is based on the excavations carried out in the mid-twentieth century at small ecclesiastical sites, or hermitages: St Helen’s (O’Neil 1964); Tean (Thomas 1960b) and (probably) East Porth, Samson (Neal forthcoming a). We need to learn more about secular life in Scilly during this period.
2. This is not to say that ecclesiastical sites are unimportant. The unpublished excavations at East Porth, Tean and East Porth, Samson, are crucial to understanding the introduction of Christianity into the Islands and also the furthering our understanding of the development of early-medieval ceramics (see Research Aim 11).

Research Aim 22: Improve our understanding of medieval and later settlements, buildings and landscapes.

1. Prioritise a systematic recording strategy for the built environment and improve the recording and utilisation of archaeological collections and other information sources. Recording buildings should embrace recording evidence and analysis of current and earlier active use of space. There needs to be a greater understanding of different kinds of structure and the detail to be recorded. There is considerable potential for documentary research, oral history, etc, to aid interpretation from physical remains. We need to improve our understanding of settlement at Old Town, St Mary’s, and around St Mary’s church.
2. We need to improve our understanding of the history of settlement on the off islands.
3. We need to undertake analysis of evidence for medieval field systems and study of fields associated with farms of known medieval date or having names of Cornish origin.
4. How do we reconcile the coastal place-name evidence used by Thomas (1985) to support his model for sea level rise with the current environmental data from the Lyonesse Project?
5. We need to improve our understanding of the development of Hugh Town.

6. We need to learn more about the impact of Augustus Smith's administration on landholding, the re-shaping of farms and creation of new boundaries and other aspects of the historic environment such as the 're-building' of Hugh Town from about the 1830s, for example, but apart from a couple of lines in Matthews (1960) the process is not documented.
7. Some of the most important domestic buildings in Scilly have already been assessed in detail but many others have only received the most limited study, some of this as a result of the Listing process, or none. The architecture and methods of construction of vernacular buildings should be the subject of further research.
8. Grouping of traditional housing clearly has many causes and effects, particularly with respect to the culture and living conditions of the islanders of Scilly. Research needs to be carried out into the way that groupings have come about, their distribution, and their particular character. For example, to what extent have the settlements evolved in a piecemeal way and to what extent have others been planned? The management of the islands since Augustus Smith became Lord Proprietor is clearly a strong factor but this needs to be better understood and the extent of his influence needs to be identified and described.
9. Town houses deserve attention as a separate group. The story of their builders, architects and occupants is more likely to be unearthed than studies of the more modest building types. However, this can only be achieved by determined research. Results of such a study together with the recording and analysis of buildings is likely to yield invaluable results that are important to the story of Scilly.
10. A much better understanding of town houses with shops is possible with detailed research that includes reference to trade directories and other documentation of the commercial activity on the islands.
11. A special study of the plan, type, date evolution and distribution of the traditional buildings in Scilly would enable a much better understanding of the way that they have evolved and were used. This study would need strong community involvement and permissions for access. Exemplar types should be surveyed by professionals/experts but much useful recording and analysis could be achieved by enthusiastic amateurs under the supervision of a central organisation or group.
12. Study of the smaller houses of Scilly may best be achieved as a thematic exercise so that the buildings get the more intensive assessment that they deserve. Their similarity to other small buildings in Ireland, Scotland, Wales, and elsewhere, needs to be better understood and comparisons should be made taking into account all the factors involved in the development of the tradition for these simple but evocative buildings.
13. The way that rows of cottages/houses have evolved needs to be recorded as a stylistic group. Much can be learned about the sequence of build by studying the quoin-work that usually survives.
14. The history and of the small nineteenth century schools that have played an important part in the development of Island society should also be studied.
15. Compilation of a database of known inscribed and dated stones + record and analysis of graffiti inside Cromwell's Castle.
16. We need to carry out a study of the history, fabric and distribution of known wells in Scilly.
17. More systematic studies of vernacular architecture as applied to both housing and other rural buildings are required, particularly at the humbler end of the scale.

10.2.4 Maritime

Scilly is an archipelago. As well as providing a valuable food resource, the sea was vital for communications, bringing Scilly into contact with Wales, Ireland, Brittany and, later, Africa, America and the rest of the world.

There is a complete lack of any boat remains from Scilly dating from before the early sixteenth century. This perhaps reflects the scarcity of remains from mainland Britain as a whole. The situation in Scilly is probably exacerbated by the effects of sea level rise which has caused large changes in the coastline.

We know that prehistoric and later people made journeys by boat to Scilly. What we do not know is what type of boats they made the journey in, nor how often. Any traces, however fragmentary, of early boats found in Scilly should be treated as of international significance (until or unless proven otherwise). Detailed study of ancient coastlines should help us to define areas of the seabed which are most likely to yield evidence of early boats and landing places, about which we know very little.

Trade and seafaring in Scilly can be charted by the presence of artefacts (mainly ceramics) which have originated outside the islands, for example prehistoric and Romano-British gabbroic pottery, early medieval Mediterranean and Gallic wares, the assemblage of imported medieval ceramics recently found in Tresco Channel and the *Little Gannick* wreck, which comprises a discrete mound of post-1850 Cornish mining equipment. The cargo of national significance because of its rarity and potential for informing us about the international trade in Cornish mining equipment and technology.

The archaeology and history of fishing in Scilly cross-cuts the maritime/land divide but has received comparatively little attention. As well as the strictly maritime resource there is also a considerable intertidal resource. Onshore assemblages of structures, artefacts and fish-bones, and isotopic studies of human skeletal remains, also need to be integrated into any understanding of fishing and its importance.

Research Aim 23: Increase our knowledge of maritime archaeological sites.

1. There is a considerable body of documentary evidence for early shipwrecks that has yet to be researched.
2. Given the maritime nature of Scilly, with the occurrence of many foreign imports emphasising external contacts during the early medieval and medieval periods (as well as maintaining contact with the Cornish mainland); the potential for possible shipwrecks and/or wreck cargoes, of these periods is high.
3. We need to carry out further research on piracy and privateering in Scilly in the sixteenth and seventeenth centuries.
4. Due to its relatively sheltered position and ease of access, the protected wreck site of *HMS Colossus* is an ideal platform for developing systems and experimental underwater techniques. The site has already been used in experimental stabilisation trials commissioned by English Heritage to determine the most effective method of stabilising the exposed wreckage on the seabed (Camidge 2005; 2009). Further work has begun on studying the mobility and deterioration of artefacts situated on the seabed of this site (Camidge 2010). This is particularly important as diver access to the site is being actively encouraged by means of the diver information trail on the site. Some work has also been done on artefact reburial on this site, and hopefully this can be developed into a long-term trial of *in situ* reburial of artefacts from underwater sites.
5. A historical study of each lighthouse is required (other than Bishop Rock which has its own recent publication, Stanbrook 2008).
6. Study of the history of salvage and diving in Scilly.

7. The high-profile salvage work undertaken on some of the Scilly wrecks needs to be properly documented during the lifetime of those who undertook the work and a record made any artefacts that appear for sale on the open market.
8. The presence in Scilly of a number of thriving dive charter businesses could be used to archaeological advantage. The three charter skippers already administer the dive trail on the protected wreck site of *HMS Colossus*; the divers might be encouraged to undertake useful tasks. These could include systematic monitoring of visited wrecks for (inevitable) deterioration, or even actively searching new areas of the seabed.
9. There is a need for a holistic interpretation of the historic and natural marine world around Scilly.

Research Aim 24: Improve our understanding of how the waters around the islands have been used over time.

1. Currents
2. Navigation routes
3. Anchorages

Research Aim 25: Assess the information for early ports, harbours and landing places.

1. Landing places and safe harbours have always been of the utmost importance in the day to day life of the islanders and, as Robinson (2007, 79) points out, they are also deeply symbolic, marking the transition between land and sea. Despite the obvious importance of the sea to Scilly, very few of these sites have been studied and there is a need for a more comprehensive study of the early ports, harbours and landing places of the archipelago.
2. We need to assess the evidence for a harbour for Roman Scilly as at the location suggested by Thomas (1985) and also to investigate the possible harbour at the south end of Arthur recorded in the 1960s.
3. Harbour walls deserve a special study, both of surviving walls and of archive photographs of walls that can no longer be seen. They should also be compared to harbour walls on the mainland. The walls on Scilly are an important part of the character of the Islands. The listing status of the main quay should be re-assessed.

10.2.5 Production and trade

Industry and Technology

We need to improve our knowledge of industry and technology in Scilly, including tinworking, stonecutting, shipbuilding and the early development of the kelp burning industry.

Research Aim 26: Widen our understanding of technology and industry in Scilly.

1. We need to encourage further study for evidence of salt making, tinworking, quarrying, stonecutting, shipbuilding and the early development and subsequent history of the kelp burning industry.
2. A detailed survey is required of the tinworking features at the north end of Tresco – openwork, lodeback pits, reservoir etc + assessment of methods of working/water storage.
3. A detailed study should be made of the distribution of known stonecutting quarries and main areas of surface work. Distribution of known wedgetcut stones (i.e. pre-c.1800).

4. Industrial buildings in Scilly are an interest group that still requires considerable study and research. The buildings that were used for industry need to be identified and recorded and research targeted at their origins and their functions. We need to undertake analysis of structures associated with the flower industry.

Food procurement

Food production is central to human existence, from the earliest periods of hunting and gathering, through the development of agriculture and animal husbandry to the predominantly farming-derived landscape and associated infrastructure that we see today. While the overall picture is moderately well understood there are specific periods, places and processes that need more work. For example, middens as evidence of gathering; red deer remains possibly indicating early hunting. Field systems of different periods may reflect different types of, or changing emphases within, agriculture, shifts in technology, etc'

Research Aim 27: Improve our understanding of the use of wild and domestic animals in the past.

A series of questions regarding the faunal data from the islands need to be further addressed. Part of this can be undertaken via a review and re-analysis of the resource itself, for instance Frank Turk's work on Nornour; however, there is also the need for new excavations to obtain new data.

1. Is there evidence for endemic populations of terrestrial fauna?
2. What wild species were present on the islands during early prehistory? What do we know of the island histories for wild species such as the Scilly Shrew, Pallas Vole, toad etc?
3. When were domesticates introduced to the islands? Where were they introduced from? What effect, if any did they have on endemic fauna?
4. How do the species exploited change over time?
5. How were the herds of food animals maintained and managed? What strategies were employed to maintain herds' health, security and productivity on these limited land masses? Is there any evidence for foddering or byring of these animals or feeding them on seaweed?
6. How did these species respond to the insular environment in terms of size and health? This can be linked with analysis of lipids in pottery fabric.
7. When was milk first produced on the islands? Were there specialist faunal economies?
8. Were the first cats domesticates or introduced wild cats? Are the small dogs mentioned by Turk dogs or foxes? When did dogs and cats first breed on the islands?
9. When was the domestic fowl introduced?
10. When were red and roe deer imported to the islands? Were there breeding populations? Are there morphometrical changes associated with these insular populations?
11. Is there evidence for the failed introduction of other species?
12. What evidence is there for the social or symbolic role of animals?
13. How do stable isotopic values of animals and humans change over time?
14. Need to investigate treatment and disposal of animal remains within houses.
- 15.

Research Aim 28: Improve our understanding of the exploitation of marine resources in the past.

1. Which methods of fishing were used? How were fish processed?
2. What contribution did marine mammal resources make to the diet? Is there evidence for persistence of marine foods throughout prehistory?
3. Which seal colonies were targeted? Excavations at Nornour and at Porth Killier and Higher Town, St Agnes have provided rare evidence for exploitation of seals in the Bronze Age deserving further study.
4. Were cetaceans hunted, driven ashore or stranded?
5. Which sea bird colonies were exploited? We know, for example, from medieval documentary evidence that the rent for the islands was at one time given as a number of puffins to be paid and there is also a reference to the export of salted puffins from Scilly to the West Indies in the late seventeenth century.
6. Why are there no mussels on Scilly?
7. Were there oysters?
8. Prawns are very abundant on the Flats but were they exploited?
9. Was edible seaweed exploited?

Research Aim 29: Improve our understanding of the use of wild, cultivated and domesticated plants in the past.

1. We need to be open to the possibilities of local distinctiveness in the contribution of unusual or infrequently cultivated plants. Our understanding of plant cultivation in the past is based on a small range of species, largely because of the processes responsible for preservation in non-waterlogged conditions. Thirsk (1997) gives some indication of the possibilities for the historic period.
2. Evidence from pollen, insects and plant macrofossils needs to be integrated to provide information on the historic management of pasture. Did meadows / hay production play a role in Scillonian agriculture or was there more reliance on rough ground grazing? Evidence from waterlogged deposits which provide information on this important aspect of farming should be a high priority for all periods as the information is of use both to archaeologists and to the nature conservation sector.
3. The evidence of grain/plant impressions on ceramics could also be investigated/considered.

Research Aim 30: Understand better the relationships of early prehistoric people to plants and animals.

1. Further work is needed on the early use of woodland resources and woodland management.
2. The changing role of marine and freshwater resources requires more adequate investigation.
3. Identification and verification of possible fish traps would be very useful. Were they used on Scilly, and in any specific area?
4. Isotopic studies need to be carried out on animal as well as human bone assemblages to understand pasturing practices and trade in domesticated animals.
5. Better understanding is needed of the status of arable in the Neolithic and Early Bronze Age as the debate on the importance of arable versus collection of wild plant resources continues. More assemblages are needed from a range of contexts, particularly associated with domestic rather than ritual activity. All

Neolithic and Early Bronze Age samples are important, but any waterlogged deposits are particularly so as they may preserve material not susceptible to charring. The study of crop waste (weed seeds and chaff) will tell us more about the nature of arable fields and farming practice for all periods and also pick up introductions of crops and weeds as they reach Scilly.

Research Aim 31: Improve our understanding of agricultural intensification and diversification in later prehistory, including establishment of a chronology for prehistoric field systems.

1. There is a need to better understand the chronology and regionality of crop diversification and intensification of production, which appears to take place from around the Middle Bronze Age onwards. Well-dated assemblages from a range of settlement contexts are required to examine introductions of new crops and associated wild species.
2. Further work is required to examine the archaeological evidence of agricultural improvement apart from a few specific examples of landscape.

Research Aim 32: Improve our understanding of the environmental impacts of farming.

1. Our knowledge of plant use especially remains patchy. This extends beyond food; fibres, building materials, adhesives, medicinal herbs and drugs should also be considered.
2. Better understanding is needed of how the process of agricultural intensification can be detected on archaeological sites. Better use of the evidence should be made by integrating environmental and artefactual evidence to test theory, coupled with comprehensive dating programmes. For example, better understanding of the development of field systems during the Bronze Age is particularly important.
3. Later prehistory is often characterised as the domestication of the land, with the appearance of permanent settlements and fields; from wildscape to landscape. The environmental evidence for agriculture, whether charred plant remains or animal ones, remains poorly studied in comparison to structures or ceramics. In this regard archaeological science needs to be taken out of the black box and treated as mainstream.
4. There is a very limited amount of environmental evidence in the medieval period and further work is needed to link sites to the wider landscape and better-dated contexts. This will provide opportunities for understanding what happened at documented historical events in Scilly. Understanding the changing patterns of land use and their environmental impact has yet to be fully realised.

Research Aim 33: Assess the character of food procurement in the Romano-British period.

1. We know little about plant and animal use and cultivation methods in the Romano-British period.
2. Did Scilly's mild climate result in the growth of crops and garden plants that could not flourish elsewhere before the post medieval period?

Research Aim 34: Investigate the origins of the chronology of use of free-threshing wheat.

Despite this being a priority for archaeobotany for many years, when, where and how the change from cultivation of hulled to free-threshing wheats took place is still not understood. This major change which will have affected husbandry and crop-processing practices occurred sometime in the centuries covering the late/post-Roman-early medieval periods. Efforts must be made to target suitable assemblages in Scilly as elsewhere in the South West.

Research Aim 35: Improve our understanding of medieval, post-medieval and modern farming and food production.

1. There is very little direct environmental evidence for the use of grassland and pasture in Scilly. The pastoral side of the landscape was a major land use and vital for producing winter food for stock. However, the types and management of grassland and pasture is very poorly understood. The integration of plant macrofossil and insect evidence and in some cases pollen as well, is the key to success here.
2. Better use should be made of documentary evidence to help interpret plant and animal assemblages. Plant and animal assemblages could also be used to challenge or confirm the accuracy of the documentary record. Monastic accounts, for example, may give insights into the control of Tavistock Abbey on the farming of large parts of the medieval landscape of Scilly. Better understanding of how farming was managed could lead to more innovative and useful interpretation.
3. The question of how food production changed in the post-medieval and Modern periods might be profitably addressed by selecting locations for a more holistic approach relating buildings, landscape, land use and artefacts. There are relatively good documentary sources on agriculture in Scilly, plus potential for oral history to illuminate more recent practise
4. The impacts on Scilly of agricultural developments at a regional/national scale in the post-medieval period, and particularly from the eighteenth century onwards, could be assessed.

Trade, Transport, and Communications

The movement of objects, people and ideas is most widespread in more recent periods but, obviously, began with the first humans to explore the region. Ports and landing places and the fast disappearing remains of modern communications are identified as important areas to be considered.

1. There are only two instances of briquetage in Scilly, from Dolphin Town, Tresco (Quinnell in press) and Samson Hill, Bryher (Thorpe and Johns forthcoming). Although briquetage is by definition related to salt production it is unclear whether these discoveries relate to salt production. Identification of possible salt production sites should be a priority.

Research Aim 37: Assess the archaeological potential for studying early medieval and medieval economy, trade, technology and production.

1. Trade and interaction in the South West generally expanded considerably during the medieval period with the growth of market towns, ports and an improved communication network. By the medieval period pottery production developed at several centres in the South West and the study of markets and trade with Scilly is a key research item. Trade could also include 'exotic' plant foods which may survive in the archaeological record.
2. What preceded the development of Hugh Town as the market for the Island population?
3. Was there also a separate economic structure for fishing in that all fish had to be brought to the steward and were marketed through him (i.e., not a 'free' market).

Research Aim 38: Widen our understanding of post-medieval and Modern transport and communications.

1. We need to improve our understanding of Scilly as part of the wider 'signalling world' in the post-medieval and modern periods

2. Recent telecommunications systems are subject to rapid change and need to be studied, recorded and artefacts conserved, as a priority.

10.2.6 Social Relations

Perhaps the most difficult area of human existence for archaeology to attempt to understand, issues such as social groupings and population movements are key in some periods in Scilly - changing ownerships of in the medieval and post-medieval periods, associated in-migration, creation of local 'elites', possible archaeological evidence in terms of buildings, material culture, size of holdings, etc? Modern identities have their origins in the past but are poorly understood in material terms. Information may also come from studies of religious activity, mortuary behaviour or defence and conflict (see below).

Research Aim 39: Improve our knowledge of prehistoric and Romano-British social organisation and change through time.

1. Was early prehistoric settlement on Scilly dispersed rather than nucleated, developing into a segmentary society which demonstrated its territoriality through dispersed monuments? Or was settlement more fluid and transient?
2. Can the varying size and form of different Early Bronze Age entrance graves or Iron Age/Romano-British cist graves be seen as reflecting differences in social status or perhaps in function?

Research Aim 40: Use archaeological and historical evidence to better understand Scillonian identity through time.

1. Undertake osteological and isotopic analysis of human remains, such as the early medieval skeletons from Tean which are unusual in showing signs of leprosy and amputation.
2. Link isotope and strontium analysis to diet and early movement of early medieval people (cf Hemer 2012).
3. The majority of 'original' Scillonian families can only trace their association with the islands back to the seventeenth century, when their ancestors came to Scilly during the post-Civil War resettlement. We need to use archaeological and historical evidence to better understand Scillonian identity through time. The IOS Family History Group has potential to help address this Research Aim.

Research Aim 41: Improve our knowledge of the historic development of the tourism industry in Scilly.

Improved rail and sea transport from the mid-nineteenth century marked the beginning of Scilly's tourist industry and this now forms the largest part (85% of its economy, with 120,000 visitors received annually at the beginning of the twenty-first century. We need to improve our knowledge of the development of Scilly's tourism industry.

10.2.7 Religion and Ritual

Religious activities are another difficult area for archaeology but have resulted in significant archaeological remains in some periods, such as Roman Nornour, the Roman Altar from Mount Holles, and extensive Early Christian activity. At other times, for instance in the later Roman period, we know from historical sources of significant change which is, as yet, practically invisible to us.

Research Aim 42: Widen our understanding of prehistoric monumentality, including exploration of the relationships between monuments, topography, landforms and seascapes.

1. Phenomenology and the appropriation of natural features such as carns and other prominent topographical features and the manipulation of the natural world to create, for example, propped stones is a subject that has received little study.

Research Aim 43: Improve our understanding of Iron Age and Roman religion.

1. We need to improve our understanding of the local and wider context of Nornour in the Romano-British period and the remarkable collection of Roman artefacts there. The suggestion that this represented mariners' votive offerings could perhaps be explored by conducting a detailed survey on the island to establish whether any structures remain which could represent any kind of shrine (or even beacon). The intertidal zone should not be neglected. It may also be worth considering a detailed bathymetric - and possibly a sidescan sonar - survey of the seabed around Nornour.

Research Aim 44: Utilise surviving buildings and records to understand liturgical and social change in post-medieval to Modern places of worship and cemeteries.

1. Whilst much is known and much has been written about the buildings that represent the established church in Scilly, the stories that they contain in their records, in their monuments, and within their burial grounds needs to be further assessed and collated. Also, the buildings themselves deserve better analysis, and recognition for the influence they have had on the evolving building traditions of the islands.
2. Nonconformism was a very influential aspect of the culture of the Isles of Scilly and deserves further study, particularly with respect to its surviving buildings. Two chapels have already been converted to domestic use and the most important chapel is used as offices. Consequently, the two chapels that remain in use as places of worship should be recorded as a matter of urgency.
3. There are probably no old purpose-built public houses on the Islands. All the traditional buildings now used as public houses appear to have been adapted from former houses or working buildings. This building type is complicated with respect to its origins and history. It is very important to community life in Scilly today but the role of public houses at earlier times needs to be unravelled as a detailed research project together with close examination of the surviving and former public houses.

Mortuary Practices

Often seen as part of religious behaviour, new approaches are stressing the social processes that influence the treatment of the dead by the living. Study of key episodes can, hopefully, be used to shed light on wider social questions as can scientific analysis of the body itself. Scilly has distinctive mortuary rites during much of prehistory – Bronze Age entrance graves and cairns, the Iron Age and Romano-British cist graves and cist grave cemeteries. The Bryher sword and mirror burial, for instance, links Scilly with the wider traditions of warrior burials and mirror burials.

Research Aim 45: Identify Neolithic mortuary practices, with particular reference to Scilly's regional, national and international context.

There is an interesting absence in Scilly of Neolithic megalithic tombs such as portal dolmens which are found in Penwith, Ireland, and France. It is possible that 'propped stones' could have acted as small megalithic monuments although these have been dated or systematically studied.

Research Aim 46: Refine our understanding of Early Bronze Age mortuary practices.

1. We need to understand why there are so many entrance graves on Scilly compared with Penwith (and south-east Ireland).
2. We need to find out more about cairnfields and better understand the relation of cairns to field systems.

Research Aim 47: Widen our understanding of Iron Age and Roman burial traditions with reference to regional funerary practices.

Approximately 36 Porthcressa-type cists have been discovered in Scilly. We need to learn more about their distribution and contents and relation to the wider south west cist burial tradition.

Research Aim 48: Utilise the potential for good evidence from early medieval burials to address research questions

The early-medieval/medieval burial found during BT trenching at Lower Town, St Martin's in 1992 demonstrates the potential for analysis (Ratcliffe 1997). The three excavated early medieval sites - St Helen's (O'Neil 1964), East Porth, Tean (Thomas 1960b), and East Porth, Samson (Neal forthcoming a), all produced human bone from inhumations, although preservation was poor at Tean and Samson. The bone needs to be located for further analysis.

10.2.8 Defence and Conflict

Conflict usually manifests itself in the archaeological record as defensive structures but may also be represented by artefact scatters or evidence of trauma on human remains. There has been much study of surviving monuments but some types of site, particularly those peripheral to actual fighting (such as garrison life and military procurement), are less well known. Broadening the study of conflict archaeology may throw light on wider social questions, large scale historical change and changing technology.

Research Aim 49: Address the limited knowledge of prehistoric and Romano-British fortifications and conflict.

1. The traditional interpretation of cliff castles as coastal hillforts and places of refuge for the local populace in times of danger is currently being reassessed. In west Cornwall such defended central places have been reinterpreted as economic and social centres under the control of tribal chief. We need to better understand the character of occupation of the two confirmed cliff castles on the Isles of Scilly (Giant's Castle, Shipman Head) and to investigate the possibility of others at Burnt Hill, and Pernagie Point, St Martin's and on St Agnes.

Research Aim 50: Examine the evidence for early medieval defence and conflict sites in Scilly.

1. We currently know very little about defence and conflict in early medieval Scilly other than a probably legendary story that Athelstan (King of Wessex AD 935-939) made a short visit to the islands to deal with Scandinavian raiders.

Research Aim 51: Deepen our understanding of medieval and later defence and conflict sites.

1. We need to learn more about Ennor Castle during the medieval period and carry out fieldwork to assess its context and collect and analyse pottery from gardens in immediate vicinity.
2. The defence buildings of Scilly have benefitted from much investigation and research. However, there is still much to be learned and explained. These buildings need to be studied as a thematic group with all the available information brought into play but with unanswered questions targeted. For

example, when the gun platform was added to Cromwell's castle the original timber or stone staircase was cut away to make a new doorway into the building and the walls made good. This kind of analysis is often lacking from available studies. Reconstruction drawings of the defence buildings explaining the way that they originally functioned and the ways that they have been altered to fulfil advancing technologies would greatly add to our understanding of these important buildings.

3. A survey is needed of sites on the Garrison revealed by IOSWT grazing.
4. We need to continue to record and monitor the condition of seventeenth-century coastal earthworks.
5. The structures related to the proposal to convert Scilly into the southern equivalent of 'Scapa Flow' for the home fleet in the early twentieth century should be investigated further, especially to elucidate how much was actually done before plans were aborted.
6. A full survey and record needs to be made of all WWII constructions, establishments and defences.

10.3 Appendix: Research themes and aims by period

Period	Research Theme	Research Aim	Page
Overarching	Methodology		
		1 Extend the use of proven methodologies for site location and interpretation, & encourage the development of new techniques	
	<i>Synthesis</i>	2 Encourage works of synthesis within & across periods, settlements, monuments and areas	
	<i>Spatial & temporal biases</i>	3 Address apparent “gaps” in our knowledge & assess whether they are meaningful or simply biases in current knowledge	
	<i>Community involvement</i>	4 Encourage wide involvement in archaeological research & present modern accounts of the past to the public	
	<i>Recording</i>	4 Encourage the study of artefact scatters using traditional and innovative methodologies both in the field & on previous collections	
		5 Encourage the accurate reporting & identification of stray finds in ways that benefit archaeological research as a whole	
		7 Prioritise a systematic recording strategy for the built environment & improve the recording & utilisation of archaeological collections & other information sources	
	<i>Transitions</i>	8 Address our lack of understanding of key transitional periods	
	<i>Hidden resources</i>	9 Improve knowledge and study of all relevant museum collections and archives	
		10 Improve access to, & synthesis of ‘grey literature’	
		11 Identify & bring to publication key unpublished excavations	
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	
	Science		
	<i>Dating</i>	14 Increase the use & improve the targeting of scientific dating	
	<i>Past environments</i>	15 Improve the quality & quantity of environmental data & our understanding of what they represent	
		16 Target specific soil & sediment contexts for environmental information, including a focus on sand deposits & the preservative qualities of midden deposits	
		17 Improve our understanding of insect faunas & what they can tell us about past environments	
		18 Continue to collect evidence for past climate change & sea level changes together with their effects on peoples’ relationships with landscapes and the sea	
	Maritime		
		23 Increase our knowledge of maritime archaeological sites	
		24 Improve our understanding of how the waters around the islands have been used over time	
		25: Assess the information for early ports, harbours & landing places	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	

Period	Research Theme	Research Aim	Page
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		32 Improve our understanding of the environmental impacts of farming	
	Social relations	40 Use archaeological & historical evidence to better understand Scillonian identity through time	
	Religion & ritual	42-48	
	Defence & conflict	49-51	
Palaeolithic & Mesolithic (c700,000 BP – c 4000 BC)			
National & Regional Thematic and Chronological Research Frameworks			
Research Strategy for Prehistory Consultation Draft June 2010			
Research and Conservation Framework for the British Palaeolithic (English Heritage/Prehistoric Society, 2008)			
Mesolithic Research and Conservation Framework for England (2012/13) - Resource Assessment consultation: https://sites.google.com/site/mesolithicframework/			
C J Webster, C J, (ed) 2008. <i>The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda</i> , Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
Research Frameworks for Holocene Lithics in Britain (Lithic Studies Society, 2004)			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
DTI, 2002-2006. <i>Offshore Strategic Environmental Assessments in regard to prehistoric archaeological remains</i> http://www.offshore-sea.org.uk/site/scripts/category_info.php?categoryID=37)			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Transitions</i>	8 Address our lack of understanding of key transitional periods	
	<i>Hidden resources</i>	11 Identify & bring to publication key unpublished excavations	
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	
	Science		
	<i>Past environments</i>	19 Improve our understanding of Palaeolithic & Mesolithic landscapes (landscapes & seascapes)	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	26 Widen our understanding of technology and industry in	

Period	Research Theme	Research Aim	Page
		Scilly	
		27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		30 Understand better the relationships of early prehistoric people to plants & animals	
	<i>Trade, transport & communications</i>	36 Assess the archaeological potential for studying prehistoric & Romano-British economy, trade, technology & production	
	Social relations	39 Improve our knowledge of prehistoric and Romano-British social organisation and change through time	
Neolithic & Early Bronze Age (c 4000 BC – c 1500 BC)			
National & Regional Thematic and Chronological Research Frameworks			
Research Strategy for Prehistory Consultation Draft June 2010			
C J Webster, C J, (ed) 2008. <i>The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda</i> , Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
Research Frameworks for Holocene Lithics in Britain (Lithic Studies Society, 2004)			
Historical Metallurgy Society, 2008. <i>Metals and Metalworking: a research framework for archaeometallurgy</i>			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
DTI, 2002-2006. <i>Offshore Strategic Environmental Assessments in regard to prehistoric archaeological remains</i> http://www.offshore-sea.org.uk/site/scripts/category_info.php?categoryID=37)			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Transitions</i>	8 Address our lack of understanding of key transitional periods	
	<i>Hidden resources</i>	11 Identify & bring to publication key unpublished excavations	
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	

Period	Research Theme	Research Aim	Page
		31 Improve our understanding of agricultural intensification & diversification in later prehistory, including establishment of a chronology for prehistoric field systems	
		32 Improve our understanding of the environmental impacts of farming	
	<i>Trade, transport & communications</i>	36 Assess the archaeological potential for studying prehistoric & Romano-British economy, trade, technology & production	
	Social relations	39 Improve our knowledge of prehistoric and Romano-British social organisation and change through time	
		40 Use archaeological & historical evidence to better understand Scillonian identity through time	
	Religion & ritual	42 Widen our understanding of prehistoric monumentality, including exploration of the relationships between monuments, topography, landforms & seascapes	
	<i>Mortuary practices</i>	45 Identify Neolithic mortuary practices, with particular reference to Scilly's regional, national & international context	
		46 Refine our understanding of Early Bronze Age mortuary practices	
	Defence & conflict	49 Address the limited knowledge of prehistoric & Romano-British fortifications & conflict	
Middle Bronze Age - Iron Age (c 1500 BC – AD 43)			
National Thematic and Chronological Research Frameworks			
Research Strategy for Prehistory Consultation Draft June 2010			
Wessex Archaeology, 2001. <i>Understanding the British Iron Age: an agenda for action</i>			
C J Webster, C J, (ed) 2008. <i>The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda</i> , Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
Historical Metallurgy Society, 2008. <i>Metals and Metalworking: a research framework for archaeometallurgy</i>			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
DTI, 2002-2006. <i>Offshore Strategic Environmental Assessments in regard to prehistoric archaeological remains</i> http://www.offshore-sea.org.uk/site/scripts/category_info.php?categoryID=37)			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Transitions</i>	8 Address our lack of understanding of key transitional periods	
	<i>Hidden resources</i>	11 Identify & bring to publication key unpublished excavations	
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	
	Settlement	20 Improve our understanding of prehistoric & Romano-British settlements, monuments & landscapes	
	Production & trade		

Period	Research Theme	Research Aim	Page
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		32 Improve our understanding of the environmental impacts of farming	
	<i>Trade, transport & communications</i>	36 Assess the archaeological potential for studying prehistoric & Romano-British economy, trade, technology & production	
	Social relations	39 Improve our knowledge of prehistoric and Romano-British social organisation and change through time	
		40 Use archaeological & historical evidence to better understand Scillonian identity through time	
	Religion & ritual	42 Widen our understanding of prehistoric monumentality, including exploration of the relationships between monuments, topography, landforms & seascapes	
		43 Improve our understanding of Iron Age & Roman religion	
	<i>Mortuary practices</i>	47 Widen our understanding of Iron Age & Roman burial traditions with reference to regional funerary practices	
	Defence & conflict	49 Address the limited knowledge of prehistoric & Romano-British fortifications & conflict	
Romano-British AD 43 - 410			
National Thematic and Chronological Research Frameworks			
S James & M Millett (eds), 2001. Britons and Romans: Advancing a Research agenda, <i>CBA Research Report, 125</i>			
C J Webster, C J, (ed) 2008. The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda, Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
A Research Strategy and Updated Agenda for the Study of Roman Pottery in Britain Study Group for Roman Pottery. 2012 http://romanpotterystudy.org/SGRPPublications/strategy/strategy.html			
D Perring, 2002. Town and Country in England: frameworks for archaeological research (CBA)			
Historical Metallurgy Society, 2008. <i>Metals and Metalworking: a research framework for archaeometallurgy</i>			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Transitions</i>	8 Address our lack of understanding of key transitional periods	
	<i>Hidden resources</i>	11 Identify & bring to publication key unpublished excavations	
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	

Period	Research Theme	Research Aim	Page
	Settlement	20 Improve our understanding of prehistoric & Romano-British settlements, monuments & landscapes	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		32 Improve our understanding of the environmental impacts of farming	
		33 Assess the character of food procurement in the Romano-British period	
		34 Investigate the origins of the chronology of use of free-threshing wheat	
	<i>Trade, transport & communications</i>	36 Assess the archaeological potential for studying prehistoric & Romano-British economy, trade, technology & production	
	Social relations	39 Improve our knowledge of prehistoric and Romano-British social organisation and change through time	
		40 Use archaeological & historical evidence to better understand Scillonian identity through time	
	Religion & ritual	43 Improve our understanding of Iron Age & Roman religion	
	<i>Mortuary practices</i>	47 Widen our understanding of Iron Age & Roman burial traditions with reference to regional funerary practices	
	Defence & conflict	49 Address the limited knowledge of prehistoric & Romano-British fortifications & conflict	
Early medieval AD 410 - 1066			
National Thematic and Chronological Research Frameworks			
C J Webster, C J, (ed) 2008. The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda, Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
A Research Framework for Post-Roman Ceramic Studies in Britain – Medieval Pottery Research Group. 2012 http://www.mprqframework.info/			
Historical Metallurgy Society, 2008. <i>Metals and Metalworking: a research framework for archaeometallurgy</i>			
D Perring, 2002. Town and Country in England: frameworks for archaeological research (CBA)			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Transitions</i>	8 Address our lack of understanding of key transitional periods	

Period	Research Theme	Research Aim	Page
	<i>Hidden resources</i>	11 Identify & bring to publication key unpublished excavations	
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	
	Settlement	21 Improve our understanding of early medieval settlements, religious buildings, monuments & landscapes	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		32 Improve our understanding of the environmental impacts of farming	
		34 Investigate the origins of the chronology of use of free-threshing wheat	
	<i>Trade, transport & communications</i>	37 Assess the archaeological potential for studying early medieval & medieval economy, trade, technology & production	
	Social relations	40 Use archaeological & historical evidence to better understand Scillonian identity through time	
	Ritual & religion		
	<i>Mortuary practices</i>	48 Utilise the potential for good evidence from early medieval burials to address research questions	
	Defence & conflict	Examine the evidence for early medieval defence and conflict sites in Scilly	
Medieval (1066 - 1547)			
National Thematic and Chronological Research Frameworks			
C J Webster, C J, (ed) 2008. The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda, Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
A Research Framework for Post-Roman Ceramic Studies in Britain – Medieval Pottery Research Group. 2012 http://www.mprgframework.info/			
Historical Metallurgy Society, 2008. <i>Metals and Metalworking: a research framework for archaeometallurgy</i>			
D Perring, 2002. <i>Town and Country in England: frameworks for archaeological research (CBA)</i>			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	
	Settlement	22 Improve our understanding of medieval and later	

Period	Research Theme	Research Aim	Page
		settlements, buildings & landscapes	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		32 Improve our understanding of the environmental impacts of farming	
		35 Improve our understanding of medieval, post-medieval & modern farming & food production	
	<i>Trade, transport & communications</i>	37 Assess the archaeological potential for studying early medieval & medieval economy, trade, technology & production	
	Social relations	40 Use archaeological & historical evidence to better understand Scillonian identity through time	
	Defence & conflict	51 Deepen our understanding of medieval & later defence & conflict sites	
Post-medieval & modern (1547 to present)			
National Thematic and Chronological Research Frameworks			
C J Webster, C J, (ed) 2008. The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda, Taunton (Somerset County Council) http://www1.somerset.gov.uk/archives/hes/swarf/index.htm			
Historical Metallurgy Society, 2008. <i>Metals and Metalworking: a research framework for archaeometallurgy</i>			
M Palmer, 1991(ed). <i>Industrial Archaeology: Working for the Future</i> , Association for Industrial Archaeology			
D Gwyn & M Palmer (eds) 2005. Understanding the Workplace: A Research Framework For Industrial Archaeology in Britain, <i>Industrial Archaeology Review</i> , Vol XXVII, 1 , (Association for Industrial Archaeology)			
J Bayley, D Crossley, and M Ponting (eds). <i>Metals and Metal Working; a research agenda for archaeometallurgy</i> , Historical Metallurgy Society (HMS Occasional Publication, London)			
National Association of Mining History Organisations Research Framework * *underway – publication April 2013			
Cornish Mining World Heritage Site http://www.cornwall.gov.uk/default.aspx?page=17376			
D Perring, 2002. <i>Town and Country in England: frameworks for archaeological research</i> (CBA)			
Maritime and Marine Historic Environment Research Framework (draft documents at http://www.soton.ac.uk/archaeology/research/projects/maritime_research_framework.html)			
English Heritage/RCHME, 1997. <i>England's Coastal Heritage</i>			
English Heritage, 2002. <i>English Heritage Strategy for Wetlands</i>			
English Heritage Regional Environmental Reviews (available as EH Research Department Reports; see http://www.english-heritage.org.uk/publications/research-reports/)			
SHERF Research Themes & Aims			
	Methodology		
	<i>Artefact studies</i>	12 Widen our understanding of Scillonian material culture of all periods	

Period	Research Theme	Research Aim	Page
		13 Use innovative techniques & methodologies to ask sophisticated questions of post-medieval to modern artefacts and buildings	
	Settlement	22 Improve our understanding of medieval and later settlements, buildings & landscapes	
	Production & trade		
	<i>Industry & technology</i>	26 Widen our understanding of technology and industry in Scilly	
	<i>Food procurement</i>	27 Improve our understanding of the use of wild & domestic animals in the past	
		28 Improve our understanding of the exploitation of marine resources in the past	
		29 Improve our understanding of the use of wild, cultivated & domesticated plants in the past	
		32 Improve our understanding of the environmental impacts of farming	
		35: Improve our understanding of medieval, post-medieval and modern farming and food production	
	<i>Trade, transport & communications</i>	38 Widen our understanding of post-medieval & Modern transport & communications	
	Social relations	40 Use archaeological & historical evidence to better understand Scillonian identity through time	
		41 Improve our knowledge of the historic development of the tourism industry in Scilly	
	Religion & ritual	44 Utilise surviving buildings & records to understand liturgical & social change in post-medieval to Modern places of worship & cemeteries	
	Defence & conflict	51 Deepen our understanding of medieval & later defence & conflict sites	

11 References

11.1 Primary sources

Sixteenth century (British Library Cotton MS. Augustus I.***.18. <http://www.bl.uk/onlinegallery/onlineex/unvbrit/s/zoomify82874.html>)

A chart in the Bibliotheque Nationale de France, prepared by Romain de Hooge in 1693, shows St Mary's with the fort set in the middle of the Garrison and the early wall across the hillside cutting the Garrison off from Hugh Town. However, the single fort shown is not Star Castle, but the plan of the 'old Fort', including its diamond-orientation (Bibliotheque Nationale de France Cartes et Plans – GE AF PF – 35 (46))

1715 (British Library King's Manuscript 45 f.7) - useful block plan of Hugh Town

1750 (Star Castle) – sketchy depiction of Hugh Town

Tithe Map and Apportionment, c1840. *Scilly Islands* (microfiche copy at HE)

Ordnance Survey, c1891. *25 Inch Map* First Edition (licensed digital copy at HE)

Ordnance Survey, c1908. *25 Inch Map* Second Edition (licensed digital copy at HE)

Ordnance Survey, 2007. *Mastermap Digital Mapping*

11.1.1.1 National Monument Record

1741 (NMR Works 31/1147) - very sketchy

1742 (NMR Works 31/1148) - useful block plan of Hugh Town

1744 (National Archives MPH 1/413) - useful block plan of Hugh Town

1746 (NMR Works 31/1149) - little of Hugh Town is shown

11.1.1.2 Cornwall Record Office

1655 (Cornwall Record Office GO/574) General Map of Islands, little detail

c 1655 (Cornwall Record Office GO/575) Map of the Garrison, Hugh Town not depicted

Godolphin Rental of 1712 (CRO DDGO/643)

c 1840 TM/206/1 St Mary's Tithe Map

1847 TM/206/2 Tresco Tithe Map

Justin Brooke Parochial Mines Index: Isles of Scilly Mines CRO X745 Folder 37 or 39

11.1.1.3 Tresco Abbey

However, between 1829 and 1831 George and Edward Driver carried out a rental survey of the islands for the Duchy of Cornwall. They listed all the holdings, tenements and occupiers. The originals are held in the archives at Tresco Abbey.

11.1.1.4 Duchy of Cornwall

George Driver, 1831. *Report*, Duchy of Cornwall Office, London

Edward Driver, 1829. *Report on the Survey of the Islands*, Duchy of Cornwall Office, London

There are reduced photographic copies in the archives of the Duchy of Cornwall Office in London of four Driver Bros manuscript maps (1829-31) covering (1) St Agnes, Annet, Gugh, St Martin's and White Island; (2) Bryher, Tresco, Gweal, St Helen's etc; (3) St Mary's; and (4) Samson, Tean and the Eastern Isles.

11.1.1.5 UK Hydrographic Office

Date	Held at	Reference	Shelf No	Surveyor	Title
c1585	Copy in 'The Scillonian, no 122	n/a	n/a	Capt John Davis	Les Sorlinges
1691-8	UKHO	B888	Historical Press	Capt Greenville Collins	The Isles of Scilly
c1708	PRO	n/a	n/a	Edmund Gostello	A Map of the Islands of Scilly Showing all the Rocks and Ledges with the Soundings & Barings And y Exact Places where the <i>Association, Eagle Rumney & Firebrand</i> were Lost.
1772	UKHO	642	Ik	Mackenzie	Part of the coast of Cornwall in the English Channel
1779	UKHO	B327a	Oh	A Tovey & N Ginver	A New Chart of the Islands of Scilly with their Soundings Channels and Sailing Marks
1789	UKHO	L48	Qe	Capt Salisbury	Unknown
1792	UKHO	637	1g	G Spence	Survey of Scilly
1792	UKHO	671	13k	G Spence	Tide Table, Scilly
1792	UKHO	674	15e	G Spence	Maritime Survey of Scilly
1792	UKHO	700	Dd	G Spence	Maritime Survey of Scilly [1796 copy by Walker?]
1792	UKHO	702	Dc	G Spence	Trig. Of Scilly, Lands End & Lizard
1792	UKHO	702	Dc	G Spence	Maritime Survey of Scilly
1792	UKHO	702a	38d	G Spence	Maritime survey of Scilly
Nd	UKHO	742	Di	Unknown	Scilly Isles
1800	UKHO	688	51b	G Spence	Torbay & part of Scilly Isles
1803	UKHO	B312	Dk	Heather	New and Improved Chart of the Isles of Scilly
1808?	UKHO	728	Dk	G Spence	Scilly Isles with proposed roadstead for man of war
1808	UKHO	28a	13i	G Spence	Scilly Isles with proposed roadstead for man of war inside St Mary's
1808	UKHO	790	Dd	McKenzie / G Spence	England, Wales and Scilly Isles
nd	UKHO	811	England	Capt M	Chart of New Grimsby

Date	Held at	Reference	Shelf No	Surveyor	Title
			Folio 4	White	Harbour
nd	UKHO	836	O1	Capt White	M Position of Seven Stones from Mudge's Trigomy Survey
nd 1847	UKHO	L4911	Qb	Unknown	The Scilly Isles Tithe map for the Isles of Scilly (St Mary's) & Tresco (microfiche copy at CAU)
1860- 3	UKHO	D7043	13i	Capt Williams	Scilly's depth soundings
1862	UKHO	D6366	6d	Capt Williams	Scilly's and the Seven Stones
1862	UKHO	D6364	Qg	Capt Williams	St Mary's Pool
1862	UKHO	D6365	Oh	Capt Williams	St Mary's Town [Hugh Town]
1863	UKHO	D7042	Ih	Capt Williams	Scilly's depth soundings round south sheet
1863	UKHO	D7041	Ih	Capt Williams	Scilly's depth soundings round North Star including seventres
1863	UKHO	D7044	31b	Capt Williams	Scilly's and Seven Stones
1863	UKHO	A2039	40e	Imray & sons	Scilly's and Seven Stones
1889	OS				<i>25 Inch Map</i> First Edition (microfiche copy at CAU)
1897	UKHO	B6241	Oi*	Capt Maxwell	St Mary's pool
1898	UKHO	B6825	11n	Capt Maxwell	St Mary's Road
1898	UKHO	B6826	16m	Capt Maxwell	St Mary's Road
1904	UKHO	9774	12h	Capt Maxwell	Western Approaches to Broadside Scilly Isles
1908	OS				<i>25 Inch Map</i> Second Edition (microfiche copy at CAU)
1983	UKHO	883	DI		Isles of Scilly, St Mary's and the Principal Offshore Islands

11.2 Publications

- Adams, J H, 1957. The Medieval Chapels of Cornwall, *Jnl Royal Inst Cornwall*, ns, **3**, **1**, 48-65
- Allan, J P, 1993. Medieval and later pottery, in Ratcliffe 1993, 93-99
- Allan, J P, and Langman, G, 1998-9. The pottery: Investigations at Nos 4-6 Pydar Street, Truro, *Cornish Archaeol*, **37-38**, 180-189
- Anderson-Whymark, H, and Thomas, J, (eds), 2011. *Beyond the mundane: regional perspectives on Neolithic pit deposition*, Oxford
- Anthony, D, 1990. Migrations in archaeology: the baby and the bathwater. *American Anthropologist*, **92**, 895-914
- Arbery, G, 2002. *The Isles of Scilly Heritage and Culture Strategy*, Consultation Draft, St Mary's (Council of the Isles of Scilly)
- Archaeological and Archival and Mainmast Conservation, 2008. *A walk around the fortifications and artillery of Garrison Hill (The Hugh)*, St Mary's, Isles of Scilly, Archaeological and Archival
- Arlott, J, 1983. *Island camera: the Isles of Scilly in the photographs of the Gibson family*, Newton Abbot
- Armit, I, Murphy, E, Nelis, E, and Simpson, D, (eds), 2003. *Neolithic settlement in Ireland and Western Britain*, Oxford
- Ashbee, P, 1952. Two Stone Cists on St Mary's, Isles of Scilly, *Proc West Cornwall Field Club*, **1**, 28-30
- Ashbee, P, 1954. The Excavation of a Cist-grave Cemetery and Associated Structures near Hughtown, St Mary's, Isles of Scilly, 1949-50, *Archaeol Journ*, **111**, 1-25
- Ashbee, P, 1963. The Chambered Tombs on St Mary's, Isles of Scilly, 1965-1966 *Cornish Archaeol*, **2**, 20-27
- Ashbee, P, 1966. Halangy Down, St Mary's, Isles of Scilly, 1965-1966 *Cornish Archaeol*, **5**, 9-18
- Ashbee, P, 1974. *Ancient Scilly, from the first farmers to the Early Christians: an introduction and survey*, Newton Abbot
- Ashbee, P, 1976. Bant's Carn, St Mary's, Isles of Scilly: an entrance grave restored and reconsidered, *Cornish Archaeol*, **15**, 11-26
- Ashbee, P, 1979. The Porthcressa Cist-Graves, St Mary's, isles of Scilly: A Postscript, *Cornish Archaeol* **18**, 61-80
- Ashbee, P, 1981. George Bonsor: an archaeological pioneer from Spain on Scilly, *Cornish Studies*, **8**, 53-63
- Ashbee, P, 1982. Mesolithic Megaliths? The Scillonian entrance-graves: a new view, *Cornish Archaeol*, **21**, 3-22
- Ashbee, P, 1983a. Halangy Porth, St Mary's, Isles of Scilly, excavations 1975-1976. *Cornish Archaeol*, **22**, 3-46
- Ashbee, P, 1983b. An Iron Age spiral bronze ring from Scilly, *Cornish Archaeol*, **22**, 120-1
- Ashbee, P, 1983a. Halangy Porth, St Mary's, Isles of Scilly, excavations 1975-1976. *Cornish Archaeol*, **22**, 3-46
- Ashbee, P, 1986. Ancient Scilly: retrospect, aspect and prospect, *Cornish Archaeol*, **25**, 186-219

- Ashbee, P, 1988. Luftwaffe aerial photographs of the Isles of Scilly, *Cornish Archaeol*, **27**, 201-3
- Ashbee, P, 1996. Halangy Down, St Mary's Isles of Scilly: Excavations 1964-1977, *Cornish Archaeology* **35**, 1- 201
- Ashbee, P, and Thomas,C, 1990. Scilly's statue-menhir rediscovered, *Antiquity*, **64**, 571-5
- Bailey, G N, 1978. Shell middens as indicators of postglacial economies: a territorial perspective, in P Mellars (ed), *The Early Postglacial Settlement of Northern Europe*, London, 37-63
- Balaam, N, 1981. Bar Point: pollen analysis. *DoE AML Rep*, **4109**
- Balaam, N, 1984. Charred plant remains, in J G Evans, 30
- Banerjee, D, Murray, A S, and Foster, A D L, 2001. Scilly Isles, UK: optical dating of a possible tsunami deposit, *Quaternary Science Review*, **20**, 715-8
- Barnatt, J, 1982. *Prehistoric Cornwall: The Ceremonial Monuments*, Wellingborough
- Barrett, J, 1994. *Fragments from Antiquity*, Oxford: Blackwell
- Barrett, J, Bradley, R. and Green, M, 1991. *Landscape, Monuments and Society: The Prehistory of Cranbourne Chase*, Cambridge
- Barrowman, R C, Batey, C E, and Morris, C D, 2007. Excavations at Tintagel Castle, Cornwall, 1990-1999. Reports of the Research Committee of the Society of Antiquaries of London, **74**, Society of Antiquaries of London
- Beagrie, N, 1989. Excavations by Bryan and Helen O'Neil on the Isles of Scilly, in Bowden, Mackay and Topping (eds) 1989, 49-54
- Bell, M, 1984. Environmental Archaeology in South West England in H C M Keelery (ed) *Environmental Archaeology: A Regional Review*, 45-7
- Bender, B, Hamilton, S, and Tilley, C, 1997. Leskernick: stone worlds: alternative narratives, nested landscapes, *Proc Prehist Soc*, **63**, 147-78
- Bennett, M, Bushell, R, Mumford, C T, Pritchard, S, and Watt, S, 1991. *One Hundred Years of the Council of the Isles of Scilly*, St Mary's
- Betjeman, J, 1964. *Cornwall, a Shell Guide*, London
- Betjeman, J, and Rowse, A L, 1974. *Victorian and Edwardian Cornwall from old photographs*, London
- Biek, L, forthcoming. The slags, in Neal forthcoming a
- Binford, L R, 1968. Post-Pleistocene adaptations, in S R and L R Binford (eds), *New Perspectives in Archaeology*, Chicago
- Bird, S, 1991. *Mayday! Preserving Life from Shipwreck off Cornwall*, Bradford on Avon
- Blackman, T, 2011. Pseudo-quoits to propped stones, in Pearce (ed) 2011, 41-7
- Bone, M, and Dawson, D (eds), 2008. Post-medieval, Industrial and Modern, in C J Webster (ed), 213-267
- Borlase, W, 1753. Of the great alterations which the Isles of Scilly have undergone since the time of the ancients, *Philosophical Transactions of the Royal Society*, **XIVIII, 1**, 55-67
- Borlase, W, 1756. *Observations on the Ancient and Present State of the Isles of Scilly*, Oxford: W Jackson
- Borlase, W, 1769. *Antiquities of Cornwall*, Oxford

- Borlase, W C, 1879. Archaeological Discoveries in the Parishes of St Just-in-Penwith and Sennen, Made During the Past Year by the President, W C Borlase MA, *Journ Roy Inst Cornwall*, **21** (May), 190-212
- Bowen, E G, 1969. *Saints, Seaways and Settlements in Celtic Lands*, Cardiff
- Bowen, E G, 1970. Britain and the British seas, in D Moore (ed), *The Irish Sea Province in Archaeology and History*, Cardiff, 13-28
- Bowen, E G, 1972. *Britain and the Western Seaways*, London
- Bowden, M, and Brodie, A, 2012. *Defending Scilly*, Swindon (English Heritage)
- Bowden, M, Mackay, D, and Topping P (eds), 1989. *From Cornwall to Caithness, Some Aspects of British Field Archaeology: Papers Presented to Norman V Quinnell*, Brit Arch Repts, Brit Ser, **209**, Oxford,
- Bowley, R, 1964. *The Fortunate Isles: A History of the Isles of Scilly*, 5th edtn, Reading
- Bowley, R L, 2010. *Scilly at War*, St Mary's
- Bradley, R, 1990. *Passage of Arms: An Archaeological Analysis of Prehistoric Hoards and Votive Deposits*, Cambridge
- Bradley, R, 2000. *The good stones: a new investigation of the Clava Cairns*, Edinburgh
- Bradley, R, 2007. *The Prehistory of Britain and Ireland*, Cambridge
- Breen, E, 2006. Constructing meanings from the architecture of landscape on the isles of Scilly, in Approaching "prehistoric and protohistoric architectures" of Europe from a "dwelling perspective": proceedings of the TAG session, Sheffield 2005, V O Jorge, with the assistance of J M Cardoso *et al* (eds), *Journal of Iberian Archaeology*, **8**, 265-80
- Breen, E, 2008. Encounters with place in prehistory: writing a case study for Shipman Head Down, Isles of Scilly, in *Recent Approaches to the Archaeology of Land Allotment*, A, Chadwick (ed), Brit Arch Repts, Brit Ser, **75**, Oxford, 97-109
- Brodie A, 2010. The Tudor Defences of Scilly, *English Heritage Historical Review*, **5**, 24-43
- Brodie, A, nd. Abraham Tovey (1687-1759) – Matross, Master Gunner and Mastermind of Scilly's Defences, *The Georgian Group Journal*, **19**, 50-66
- Bronk Ramsey, C. 2005. *OxCal*. Research Laboratory for Archaeology, University of Oxford, 3.10 edition
- Broodbank, C, 2000. *An Island Archaeology of the Early Cyclades*, Cambridge
- Brophy, K, and Barclay, A, (eds), 2008. *Defining a Regional Neolithic: evidence from Britain and Ireland*, Oxford
- Brothwell, D, 1961. The Palaeopathology of Early British Man: an essay on the problems of diagnosis, *Journ Roy Anthropological Inst of Great Britain and Ireland*, **91, 2**, 318-44
- Brothwell, D R, 1981. *Digging up bones: the excavation, treatment and study of human skeletal remains*, 3 edn, London
- Bruce-Mitford, R, 1997. *Mawgan Porth. A settlement of the late Saxon period on the north Cornish coast*, English Heritage
- Brück, J, 1996. The Early – Middle Bronze Age Transition in Wessex, Sussex and the Thames Valley, Unpublished PhD Thesis, University of Cambridge
- Brück, J, 1999a. Houses, Lifecycles and Deposition on Middle Bronze Age Settlements in Southern England, *Proc Prehist Soc*, 65, 145-166

- Brück, J, 1999b. What's in a settlement? Domestic practice and residential mobility in early bronze age southern England, in J Bruck and M Goodman (eds), *Making places in the prehistoric world: themes in settlement archaeology*, London, 55-77
- Buchanan, C, and Context 4D, 2006. *Isles of Scilly design guide*, St Mary's (Council of the Isles of Scilly)
- Butcher, S A, 1978. Excavations at Nornour, Isles of Scilly 1969-73: the pre-Roman settlement, *Cornish Archaeol*, **17**, 29-112
- Butcher, S, 1993. *Nornour*, Isles of Scilly Museum Publication, **7**, St Mary's
- Butcher, S, 2000-1. Roman Nornour, Isles of Scilly: reconsideration, *Cornish Archaeol*, **39-40**, 5-44
- Butcher, S A, 2002. Two cist graves at Lunnon Farm, St Mary's, Isles of Scilly, unpublished field report
- Butcher S A, in prep. The brooch, in Taylor and Johns in prep
- Butcher, S A, and Johns, C, forthcoming. Excavation of a prehistoric site at Bar Point, St Mary's, Isles of Scilly, 1972, *Cornish Archaeol*
- Butler, J, 1997. The Prehistoric Settlement of Dartmoor, Unpublished PhD thesis, University of London
- Callaghan, R, and Scarre, C, 2009. Simulating the Western Seaways, *Oxford Journ Archaeol*, **28**, 357-372
- Camidge, K, 2001. *HMS Colossus Survey Report*. Unpublished report for English Heritage, Penzance (CISMAS)
- Camidge, K, 2002. *HMS Colossus Survey Report*. Unpublished report for DCMS/EH, Penzance (CISMAS)
- Camidge, K, 2005. *HMS Colossus Stabilisation Trial*. Unpublished report for English Heritage, Penzance (CISMAS)
- Camidge, K, 2008. *HMS Colossus Stabilisation & Recording*. Unpublished report for English Heritage, Penzance (CISMAS)
- Camidge, K, 2009. HMS Colossus, an Experimental Site Stabilization. *Conservation and Management of Archaeological Sites*, **11(2)**, 161-88
- Camidge, K, 2010. HMS Colossus Monitoring Survey, Unpublished report for English Heritage, Penzance (CISMAS)
- Camidge, K, 2011. *Firebrand Shipwreck Recording Project*, Penzance (CISMAS)
- Camidge, K, Witheridge, J, and Witheridge, R, 2005. *HMS Colossus, CISMAS Debris Field Survey. Project Report*, Penzance (CISMAS)
- Camidge, K, Charman, S, Rees P, and Randall, L, 2010. *Samson Flats intertidal survey: project report 2010, Penzance*, (Cornwall and Isles of Scilly Maritime Archaeology Society report 5694)
- Camidge, K, Charman, D, Johns, C, Meadows, J, Mills, S, Mulville, J, Roberts, H M, and Stevens, T, 2010. *The Lyonesse Project: evolution of the coastal and marine environment of Scilly, Year 1 Report*, Truro (HE Projects, Cornwall Council)
- Campbell, E, 1991. Imported goods in the Early Medieval Celtic West with special reference to Dinas Powys. Unpublished PhD thesis, Cardiff University
- Campbell, E, 1996. The archaeological evidence for contacts: imports, trade and economy in Celtic Britain AD 400-800, in K R Dark (ed), *External Contacts and the Economy of Late Roman and Post-Roman Britain*, Woodbridge, 83-96

- Campbell, E, 2007. *Continental and Mediterranean Imports to Atlantic Britain and Ireland, AD 400–800*, CBA Research Report, **157**, York
- Charman, D, Bayliss, A, Camidge, K, Fyfe, R, Johns, C, Meadows, J, Mills, S, Mulville, J, Roberts, H M, and Stevens, T, 2012. *The Lyonesse Project: evolution of the coastal and marine environment of Scilly, Draft Final Report*, Truro (HE Projects, Cornwall Council)
- Cherry, J, 1981. Pattern and process in the earliest colonization of the Mediterranean islands, *Proc Prehist Soc*, **47**, 41-68
- Chope, R P, 1918. *Early Tours in Devon and Cornwall*, Newton Abbot (reprinted 1967)
- Chudleigh, D, 1992. *Bridge over Lyonesse*. Isles of Scilly Steamship Company
- Clark, A J, 1978. Radiocarbon and magnetic dating, in Butcher 1978, 66-7
- Clark, A J, Tarling, D H, and Noel, M, 1988. Developments in archaeomagnetic dating in Britain, *Journl Archaeol Science*, **15(6)**, 645-667
- Clark, P, (ed), 2004. *The Dover Bronze Age Boat in Context: Society and water transport in prehistoric Europe*
- Clark, P, 2004a. Discussion, in Clark (ed) 2004, 305-330
- Clark, P, 2004b. The Dover Boat ten years after its discovery, in Clark (ed) 2004, 1-12
- Clelland, S, and Batt, C M, nd. *Summary of the results of the re-evaluation of the magnetic data from Little Bay, Isles of Scilly*, Bradford
- Coate, S, 1994. The Problems of the Scillonian Entrance Graves: the Evidence Reconsidered, unpublished undergraduate dissertation, Exeter University (copy held by HE Projects, Cornwall Council)
- Cole, D, and Jones, A M, 2002-3. Journeys to the Rock: archaeological investigations at Tregarrick Farm, Roche. *Cornish Archaeol*, **41-42**, 107-143
- Cole, D, and Thorpe, C, 1996. Penhale Round/SWEB 5 - An Archaeological Watching Brief, Truro (Cornwall Archaeological Unit)
- Cooke, J, 1883. *The Shipwreck of Sir Cloudesley Shovell on the Islands in 1707*, London
- Cook, S F, and Treganza, A E, 1950. The quantitative investigation of Indian Mounds, *University of California Publications in American Archaeology and Ethnology*, **40** (5), 223-262
- Cooney, G. 2004. Neolithic worlds: islands in the Irish Sea, in V Cummings and C Fowler (eds), 145-159
- Cornwall Archaeological Unit, 1999. *The Garrison, St Mary's, Isles of Scilly: a Walk around the walls* [leaflet], Truro (Cornwall Archaeological Unit)
- Cornish, T, 1874. The Conversazione, *Jnl Royal Inst Cornwall*, **5**, ixvii
- Council of the Isles of Scilly, 2004. *A heritage and cultural strategy for the Isles of Scilly*, St Mary
- Council of the Isles of Scilly, 2005. *The Isles of Scilly Local Plan. A 2020 vision*, St Mary's
- Courtney, L H, 1867. *A week in the Isles of Scilly*, Penzance
- Cowan, R, 1982. The Pleinschaal from the Hollandia. *IJNA*, **11(4)**, 287-91
- Cowan, R, 1997. *A century of images: photographs by the Gibson family*, London
- Cowan, R, Cowan, Z, and Marsten, P, 1975. The Dutch East Indiaman Hollandia wrecked on the Isles of Scilly, *IJNA*, **4(2)**, 267-300
- Cowan, Z, 2001. *Francis Frith's Isles of Scilly*, Salisbury

- Cowan, Z T, 1991. *The Story of Samson – an Island Community of Scilly – The Webbers and the Woodcocks*, Cirencester
- Cox, J, and Thorp, J R L, 1993. *Star Castle, St Mary's, Isles of Scilly*, Exeter (report to English Heritage by Keystone Historic Buildings Consultants)
- Craddock, P, and Hook, D, 1987. Ingots from the sea: The British Museum collection of ingots. *IJNR*, **16(3)**, 201-06
- Crawford, O G S, 1927. Lyonesse, *Antiquity* **I**, 5-14
- Crawford, O G S, 1928. Stone Cists, *Antiquity*, **2**, 418-422
- Crawford, O G S, 1946. Editorial, *Antiquity*, **20**, 21
- Crone, A, and Campbell, E, 2005. A Crannog of the First Millenium AD: Excavations by Jack Scott at Loch Glashan, Argyll, 1960, *Soc Antiq Scotland*
- Cummings, V, and Fowler, C, (eds) 2004. *The Neolithic of the Irish Sea: Materiality and traditions of practice*, Oxford
- Cummings, V, and Fowler, C, 2004a. Introduction, in Cummings and Fowler (eds) 2003, 1-8
- Cummings, V, and Whittle, A, 2004b. *Places of special virtue: megaliths in the Neolithic landscapes of Wales*, Oxford
- Cummings, V, and Fowler, C, 2007. *From cairn to cemetery. An archaeological investigation of the chambered cairns and early Bronze Age mortuary deposits at Cairnderry and Bargrennan White Cairn, south-west Scotland*, Brit Arch Repts, Brit Ser, **434**, Oxford
- Cunliffe, B, 2001. *Facing the Ocean: The Atlantic and its peoples, 8000 BC-AD 1500*, Oxford
- Curet, L A, 2005. *Caribbean Palaeodemography*, Tuscaloosa
- Daniel, G E, 1941. The dual nature of the megalithic colonisation of Europe, *Proc Prehist Soc*, **7**, 1-49
- Daniel, G, E, 1950. *Prehistoric Chamber Tombs of England and Wales*, Cambridge
- Dark, K, 2001. *Byzantine Pottery*, Oxford
- Davies, C J, 1988. Shipbuilding on the Isles of Scilly, *Jnl Royal Inst Cornwall*, ns, **10**, 187-220
- Dimbleby, G W, 1976-7. A buried soil at Innisidgen, St Mary's, Isles of Scilly. *Cornish Studies*, **45**, 5-10
- Dimbleby, G W, Greig, J R A, and Scaife, R G, 1981. Vegetational history of the Isles of Scilly, in D Brothwell and G W Dimbleby, (eds), *Environmental aspects of coasts and islands*, Brit Arch Repts, Int Ser, **94**, Oxford, 127-143
- Dimbleby, G W, 1996. The soil pollen, in Ashbee 1996, 171-4
- Doble, G H. 1938. *Saint Mawes, Abbot and Confessor* (Cornish Saints I, 2nd edn, revised), Long Compton
- Douch, H L, 1969. Cornish earthenware potters, *Journ Roy Institution Cornwall*, ns, **6**, 33-64
- Dudley, D, 1960-1. Some cist-graves in Poynter's Garden, St Mary's, Isles of Scilly, *Proc W Cornwall Fld Clb* **2, 5**, 221-229
- Dudley, D, 1967. Excavations on Nornour in the Isles of Scilly 1962-1966, *Archaeol Journ*, 124, 1-64

- Dumville, D N, 2002 The north Atlantic monastic thalassocracy: sailing the desert in early medieval insular spirituality, in N E Crawford (ed), *The Papar in the North Atlantic: Environment and History. The 'Papar' Project, Vol. 1, St. John's House Papers*, **10**, St Andrews, 121-31
- Dunning, G C, 1964. Objects of metal, stone and bone, in O'Neil 1964, 66-8
- Dunning, G C, 1965. Medieval pottery from the Celtic hermitage on St Helen's, Isles of Scilly, *Archaeol Journ*, **121**, 55-66
- Edmonds, M, 1997. Taskscape, technology and tradition, *Analecta Praehistorica Leidensia*, **29**, 99-110.
- Engelsman, S, 1982. The navigational ruler from the Hollandia (1743). *IJNA*, **11(4)**, 291-92
- English Heritage 1996. *Frameworks for our Past*, English Heritage
- English Heritage 2011. *National Heritage Protection Programme*, English Heritage
- Evans, C D R, 1990. *United Kingdom offshore regional report: the geology of the Western English Channel and its western approaches*, British Geological Society, London
- Evans, D H, 1984. Clay pipes, in H Mason, 67-68
- Evans, J D, 1973. Islands as laboratories for the study of cultural process, in C Renfrew (ed), *The Explanation of Culture Change: Models in Prehistory*, London. 517-20
- Evans, J G, 1984. Excavations at Bar Point, St Mary's, Isles of Scilly, 1979-80, *Cornish Studies*, **11**, 7-32
- Fairnell, E H, and Barrett, J H, 2007. Fur-bearing species and Scottish islands, *Journ Archaeol Science*, **34**, 463-84
- Fellows, D, 2007. *The Garrison, St Mary's, Isles of Scilly: archaeological evaluation report project 4792*, English Heritage Research Department, Rept Ser no **69/2007**
- Fenwick, V, and Gale, A, 1998. *Historic Shipwrecks Discovered, Protected and Investigated*, Stroud
- Fleming, A, 2005. *St Kilda and the Wider World*, Macclesfield
- Fowler, P J, and Thomas, C, 1979. Lyonesse revisited: the early walls of Scilly, *Antiquity*, **53**, 175-189
- Fox, C. 1932. *The Personality of Britain*, Cardiff
- Fox, A, 1995. Tin ingots from Bigbury Bay, *Proc Devon Archaeol Soc*, **53**, 11-23
- Fulford, M, 1989. A Roman Shipwreck off Nornour, Isles of Scilly, *Britannia*, **20**, 245-49
- Fulford, M, Champion, T, and Long, A, 1997. *England's Coastal Heritage: A Survey for English Heritage*, London
- Gahan, A, and McCutcheon, C, 1997. Medieval pottery in M F Hurley, O M B Scully, and S W J McCutcheon (eds), *Late Viking Age and Medieval Waterford: excavations 1986-1992*, Waterford, 285-359
- Garrow, D, 2010. The temporality of materials: occupation practices in Eastern England during the 5th and 4th millennia BC, in B Finlayson and G Warren (eds), *Landscapes in Transition: understanding hunter-gatherer and farming landscapes in the early Holocene of Europe and the Levant*, Oxford, 208-220
- Garrow, D, and Sturt, F, 2009. *Stepping stones to the Neolithic? Islands and the western seaways of Britain, 4500-3500 BCa brief project outline in advance of*

- potential funding applications - Isles of Scilly* (Universities of Liverpool and Southampton)
- Garrow, D, and Sturt, F, 2011. Grey waters bright with Neolithic argonauts? Maritime connections and the Mesolithic-Neolithic transition within the 'western seaways' of Britain, c 5000-3500 BC, *Antiquity*, **85**, 59-72
- Gater, J, 1999. *Geophysical Survey Report 99/67. Dolphin Town, Treco, Isles of Scilly*, Bradford (GSB)
- Gawronski, J, Kist, B, and Stokvis-van Boetzelaer, O, 1992. *Hollandia Compendium: a contribution to the history, archaeology, classification and lexography of a 150 ft. Dutch East Indiaman (1740-1750)*. Amsterdam: Elsevier Science B.V.
- Gibson, A, 2003. What do we mean by Neolithic settlement? Some approaches, 10 years on, in I Armit, E Murphy, E Nelis and D Simpson (eds), 138-145
- Gill, C, 1975. *The Isles of Scilly*, Newton Abbot
- Gillis, R, 1956. The Isles of Scilly Gigs, *Mariner's Mirror*, **42, 2**, 159
- Gillis, R, 1969. Pilot Gigs, *Mariner's Mirror*, **55, 2**, 117
- Gossip, J, forthcoming a. The evaluation of a multi-period prehistoric site and fogou at Boden Vean, St Anthony-in-Meneage, Cornwall, 2003, *Cornish Archaeol*
- Gossip, J, forthcoming b. Archaeological Investigations at Nancemere, Truro, Cornwall, 2002: a prehistoric and Romano-British landscape, *Cornish Archaeol*
- Gossip, J, and Jones, A, M, 2007. *Archaeological investigations of a later prehistoric and a Romano-British landscape at Tremough, Penryn, Cornwall*, Brit Arch Repts, Brit Ser, **443**, Oxford
- Gray, A, 1972. Prehistoric Habitation Sites on the Isles of Scilly, *Cornish Archaeol*, **11**, 19-49
- Gray, A, 1983. The animal remains, in Ashbee 1983a, 38-9
- Green, J, 1984. Further comment on the hand-guns ex Association. *IJNA*, **13, 4**, 334
- Green, M J, 1997. *Exploring the world of the Druids*, London
- Greig, J R A, and Keeley, H M, 1978. Appendix 2: A report on the soils and their pollen from north of the site at Nornour, Isles of Scilly, in Butcher 1978, 106-112
- Greeves, T, 2006-7. Who built the Daymark on St Martin's – and Why?, *Scillonian*, **266**, 164-7
- Greeves, T, 2010. Stonecutting on the Isles of Scilly, *Scillonian*, **271**, 151-3
- Grigson, G, 1948. *The Scilly Isles*, London
- Grimes, W F, 1960. *Salakee Down chambered cairn, St Mary's, Scilly*, in W F Grimes *Excavations on Defence Sites, 1939-1945: Mainly Neolithic-Bronze Age*, London
- Guthrie, A, 1969. Excavation of a settlement at Goldherring, Sancreed, 1958-61, *Cornish Archaeol*, **8**, 5-39
- Hambleton, E, 1999, *Animal Husbandry Regimes in Iron Age Britain*, Brit Arch Repts, Brit Ser, **282**, Oxford
- Harris, D, 1986. Cornwall in the Bronze Age, *Cornish Archaeol*, **25**, 81-110
- Hayes, J W, 1972. *Late Roman Pottery*, London
- Hayes, J W, 1980. *A Supplement to Late Roman Pottery*, London
- Hazell, Z, 2008. *Coastal peat resource database (Isles of Scilly)*, English Heritage

- Heath, R, 1750. *A Natural and Historical Account of the Islands of Scilly*, London (reprinted Newcastle-upon-Tyne, 1967)
- Heathcote, J A, 2000. Hillside Farm, Bryher, Isles of Scilly. Geoarchaeological assessment, in C Johns and J Ratcliffe, *Sword Burial at Hillside Farm, Bryher, Isles of Scilly: Assessment and Updated Project Design*, Truro (Historic Environment Service, Cornwall County Council), 69-72
- Hemer, K A, 2012. A bioarchaeological study of the human remains from the early medieval cemetery of Cronk Keeillans, Isle of Man, *Proc Isle of Man Nat Hist and Antiq Soc*, **12, 3**, 469-86
- Hencken, H O'N, 1932. *The Archaeology of Cornwall and Scilly*, London
- Hencken, H O'N, 1933. Notes on the Megalithic Monuments in the Isles of Scilly, *Ant Journ*, **13**, 17-38
- Herring, P, 1994. The cliff castles and hillforts of West Penwith in the light of recent work at Maen Castle and Treryn Dinas, *Cornish Archaeol*, **33**, 40-56
- Herring, P (ed), 2008. *Bodmin Moor: an archaeological survey: Vol 2 The Industrial and Post-medieval landscapes*, Truro (English Heritage)
- Herring, P, Thorpe, C, Quinnell, H, Reynolds, A, and Allan, J, 2000. *St Michael's Mount Archaeological Works 1995-98*, Truro (Historic Environment Service, Cornwall County Council)
- Hill, P, 1998. *Whithorn and St Ninian; the excavation of a monastic town, 1984-91*, Stroud
- Horn, W, White Marshall, J, and Rourke, G D, 1990. *The Forgotten Hermitage of Skellig Michael*, Berkeley
- Hosfield, R, Straker, V and Gardiner, P, 2008. Palaeolithic and Mesolithic, in C Webster (ed), 23-62
- Hudston, S, 2000. *Islomania*, Bridport
- Hutchinson, G, 1979. The Bar-Lug Pottery of Cornwall, *Cornish Archaeol* **18**, 81-103
- Hutchinson, G, 1998. *Medieval Ships and Shipping*, London
- Isles of Scilly Area of Outstanding Natural Beauty, 2010. *AONB management strategy, 2010-2014*, Hugh Town
- Ingrem, C, 2000. The animal bone from Romano-British deposits at Atlantic Road, Newquay, Cornwall, unpublished report for Cornwall Archaeological Unit
- Ingrem, C, 2002-3. Animal bone, in Johns 2002-3, 53-8
- Ingrem, C, in prep. The animal bone, in Taylor and Johns, forthcoming
- Innes, J, Blackford, J, and Davey, J, 2003. Dating the introduction of cereal cultivation to the British Isles: early palaeoecological evidence from the Isle of Man, *Journ Quaternary Science*, **18**, 603-613
- Isles of Scilly Area of Outstanding Natural Beauty, 2010. *AONB management strategy, 2010-2014*, St Mary's
- Jellicoe, G A, 1965. *A landscape charter for the Isles of Scilly*, London (report by Jellicoe and Coleridge, London, for Council of the Isles of Scilly)
- Johns, C, 2002-3. An Iron Age Sword and Mirror Burial from Bryher, Isles of Scilly, *Cornish Archaeol*, **41-42**, 1-79
- Johns, C, 2011. *The Isles of Scilly Historic Research Framework: Project Design*, Truro (Historic Environment Projects, Cornwall Council)

- Johns, C, Berry, E, and Edwards, B, 2007. *The Samson buildings project 2006-7, Samson, Isles of Scilly: lichen assessment, archaeological recording and building consolidation*, Truro (Historic Environment Projects, Cornwall County Council)
- Johns, C, and Fletcher, M, 2010. *The Garrison, St Mary's, Isles of Scilly: Conservation Plan*, Truro (Historic Environment Projects, Cornwall Council)
- Johns, C, Larn, R, and Tapper, B P, 2004. *Rapid Coastal Zone Assessment for the Isles of Scilly*, Truro (Historic Environment Service, Cornwall County Council)
- Johns, C, and Mulville, J, 2011. *Islands in a Common Sea: archaeological fieldwork in the Isles of Scilly September 2005*, Truro (Historic Environment Projects, Cornwall Council)
- Johns, C, and Sawyer, K, 2008. *Off islands quays refurbishments, Isles of Scilly, 2007: archaeological recording*, Truro (Historic Environment Service, Cornwall County Council)
- Johns, C, Sturgess, J, and Shepherd, F, 2010. *The new Five Islands School Base proposed site, Carn Gwaval, St Mary's Isles of Scilly: archaeological assessment, evaluation and building recording*, Truro (Historic Environment Projects, Cornwall Council)
- Johns, C, and Sawyer, K, 2005. *Lower Benham Battery, The Garrison, St Mary's, Isles of Scilly: archaeological watching brief*, Truro (Historic Environment Service, Cornwall Council)
- Johns, C, Mulville, J, and Berry, E, forthcoming a. *The Samson buildings project 2007-8, Samson, Isles of Scilly: archaeological recording and building consolidation*, Truro (Historic Environment Projects, Cornwall Council)
- Johns, C, Berry, E and Mulville, J, forthcoming b. *Tean farmhouses project 2007-8, Tean, Isles of Scilly: archaeological recording and building consolidation*, Truro (Historic Environment Projects, Cornwall Council)
- Johns, C, and Quinnell, H, forthcoming. Two nested Bronze Age vessels from St Agnes, Isles of Scilly, *Cornish Archaeol*
- Johnson, N, and Rose, P, 1994. *Bodmin Moor: An Archaeological Survey. Volume 1: the Human Landscape to c 1800*, English Heritage Archaeological Report, **24**, London
- Jones, A M, 1998-9. The Excavation of a Bronze Age Structure at Callestick, *Cornish Archaeol*, **37**, 5-55
- Jones, A M, 2005. *Cornish Bronze Age Ceremonial Landscapes, c 2500-1500 BC*, Brit Arch Repts, Brit Ser, **394**, Oxford
- Jones, A M, forthcoming. Hay Close, St Newlyn East: excavations by the Cornwall Archaeological Society, 2007, *Cornish Archaeol*
- Jones, A, and Quinnell, H, 2006. Cornish Beakers: new discoveries and perspectives, *Cornish Archaeol*, **45**, 31-70
- Jones, A M and Quinnell, H, 2011. The Neolithic and Bronze Age Periods in Cornwall, c 4000 cal BC to c 1000 cal BC: an overview of recent developments, *Cornish Archaeol*, **50**, 197-230
- Jones, A M, and Reed, S J, 2006. By land, sea and air: an Early Neolithic pit group at Porthscatho, Cornwall, and consideration of coastal activity during the Neolithic, *Cornish Archaeol*, **45**, 1-30
- Jones, A M, and Thomas, C, 2010. Bosiliack and a Reconsideration of Entrance Graves, *Proc Prehist Soc*, **76**, 271-96

- Jordan, D, Haddon-Reece, D, and Bayliss, A, 1994. *Radiocarbon dates from samples funded by English Heritage and dated before 1981*, London
- Keeley, H M, 1978. Soils, in Butcher 1978, 97-8
- Keeley, H M, 1983. Soil report for the site at Little Bay, St Martin's, Isles of Scilly, DoE, AML rep, **3846**
- Keepax, C A, and Morgan, G, 1978. Charcoal in Butcher 1978, 98
- Keepax, C A, forthcoming. Human bones from Grave III, in Neal forthcoming a
- Kingsford-Curram, R, 1963. Traces of the Roman (archaeological work in the Scillies by Guildford BS-AC), *Triton Magazine* (August)
- Kirk, T, 2004. Memory, tradition and materiality: the Isles of Scilly in context, in Cummings and Fowler (eds) 2004, 233-244
- Kirk, T, 2009. *A Research Framework for the Archaeology of the Isles of Scilly (P McMahon revision)*, Council of the Isles of Scilly
- Kirkham, G, 2003. *Cornwall and Scilly Urban Survey: Hugh Town, St Mary's, Isles of Scilly*, Truro (Historic Environment Service, Cornwall County Council)
- Kirkham, G, forthcoming. 'One principal street about three hundred and twenty yards long': the historical development and topography of Hugh Town, St Mary's, Isles of Scilly, *Cornish Archaeol*
- Kirkham, G, Shepherd, F, and Johns, C, 2011. *Field boundaries in the Isles of Scilly: historic environment study to inform management for conservation*, Truro (HE Projects, Cornwall Council)
- Knowles, D, and Haddock, R N, 1971. *Medieval Religious Houses*, Harlow
- Land Use Consultants and Cornwall Archaeological Unit, 1996. *Isles of Scilly Historic Landscape Assessment and Management Strategy*, Truro (Cornwall County Council)
- Larn, R, 1971. *Cornish Shipwrecks: The Isles of Scilly*, Newton Abbot
- Larn, R, 1984. Unidentified Artifacts I. *IJNA*, **13(1)**, 65
- Larn, R., 1985. Unidentified artefacts 6. *IJNA*, **14(3)**, 261-2
- Larn, R. 1993. *Shipwrecks in the Isles of Scilly*, Nairn
- Larn, R (ed), 1999. *Ships, Shipwrecks and Maritime Incidents around the Isles of Scilly*. Isles of Scilly Museum Publication, **3**, St Mary's
- Larn, R, and Larn, B, 1995. *Shipwreck Index of the British Isles Vol 1*. Lloyd's Register of Shipping, London
- Larn, R (ed), 2006. *Poor England has Lost so many Men*, St Mary's (Council of the Isles of Scilly)
- Lavery, B, 1987. *The Arming and Fitting of English Ships of War 1600-1815*, London
- Law, M, in prep. Shell, in Taylor and Johns in prep
- Laws, P, 1980. *The Buildings of Scilly*, Isles of Scilly Museum Publication, **12**, St Mary's and Redruth
- Le Carré, J, 1997. The inheritor, in R Cowan, *A century of images: photographs by the Gibson family*, London, 1-10
- Le Patourel, H E J, 1992. Ceramic horns, in D Gaimster and M Redknap (eds), *Everyday and Exotic Pottery From Europe c. 650-1900: Studies in Honour of John G. Hurst*, Oxford, 157-66

- Leung, R, nd [2010], *Historic Building Report: Former Lifeboat Station/Bulb Treating Station, Porthcressa Beach, St Mary's, Isles of Scilly*, St Mary's (Council of the Isles of Scilly)
- Lewis H A, 1948. *St Martin's, St Helen's and Tean (Isles of Scilly) in legend and history*, Truro (2nd revised ed)
- Light, J, forthcoming. Shell, in Ratcliffe, Johns and Young forthcoming
- Lister, A M, 1995. *Sea Levels and the Evolution of Island Endemics: the Dwarf Red Deer of Jersey*, Geological Soc Special Publications, **96**, 151-172
- Llewellyn, S, 2005. *Emperor Smith: The Man Who Built Scilly*, Wimborne Minster
- Locker, A, 1983. The bones, in Neal 1983, 66-70
- Locker, A, 1996. The Mammal Bones, in Ashbee 1996, 118-127
- Locker, A, forthcoming. The animal bone, in Ratcliffe, Johns and Young forthcoming
- Lotbiniere, S.D, 1984. Gunflint recognition, *IJNA*, **13(3)**, 206-09
- Lousley, J E, 1971. *The Flora of the Isles of Scilly*, Newton Abbot
- Lynch, F, 1975. Excavations at Carreg Samson megalithic tomb, Mathry, Pembrokeshire, *Archaeologia Cambrensis*, **124**, 15-35
- Macalister, R A S, 1945. *Corpus Inscriptionum Insularum Celticarum, Vol 1*, Dublin
- McArthur, R H, and Wilson, E O, 1968. *The Theory of Island Biogeography*, Princeton
- McAvoy, F, 1980. The Excavation of a Multi-period Site at Carngoon Bank, Lizard, *Cornish Archaeol*, **19**, 31-62
- McBride, P, and Larn, R, 1999. *Admiral Shovell's Treasure and Shipwreck in the Isles of Scilly*, Cornwall and Isles of Scilly
- McGrail, S, 2001. *Boats of the World from the Stone Age to Medieval Times*, Oxford
- McGrail, S, 2004. North-west European sea-going boats before AD 400, in Clark (ed) 2004, 51-66
- McGrail, S, 1998. *Ancient Boats in North-West Europe: The Archaeology of Water Transport to AD 1500*, Harlow
- MacPhail, R I, 1981. Soil report on Bar Point, St Mary's, Isles of Scilly, DoE, AML rep, **3299**
- McQuade, M, and O'Donnell, L, 2007. Late Mesolithic fish traps from the Liffey estuary, Dublin, Ireland, *Antiquity*, **81**, 569-584
- Mace, M, nd. *HMS Association: Sank 1707*, St Marys (Scillonian Diving Service)
- Madden, P, 1996. *Scilly's Building Heritage*, Truro
- Magalotti, L, 1821. Travels of Cosmo the Third, Grand Duke of Tuscany, through England, during the reign of King Charles the Second (1669), London
- Manske, K, Owoc, M A, Greek, M, Illingworth, and Advisio, J M, nd. *Island Threads: Bronze Age Textile Production and Identity on the Isles of Scilly, UK*. Poster in the Isles of Scilly Museum (Merceyhurst Archaeological Institute, Erie, Pennsylvania)
- Marsden, P, 1978. A reconstruction of the treasure of the *Amsterdam* and the *Hollandia*. *IJNA*, **7(2)**, 133-48
- Marshall, P, 2002-3. Radiocarbon dates, in C Johns, 23
- Marshall, P, and Bronk Ramsey, C, 2012. Par Beach, St Martin's, Isles of Scilly (Lyonesse Project): Radiocarbon Dating, unpublished English Heritage report

- Mason, H, 1984. The excavation of a cottage on Samson, Isles of Scilly, 1977, *Cornish Studies*, **11**, 49-68
- Mason, J, 1983. *Scallop and queen fisheries in the British Isles*, Fishing News Books
- Mason, H, and Hayton, C, 1977. Excavations on Samson, Isles of Scilly, Unpublished interim report
- Mathews, W H, 1922. *Mazes and Labyrinths*,
- Matthews, G F, 1960. *The Isles of Scilly: a constitutional, economic and social survey of the development of an island people from early times to 1900*, London
- Matthews, G K, 1965-66. A Complete Survey of Holdings, Tenements and Occupiers in Scilly 1829-31, Part 1, *Scillonian*, **164**
- Matthews, G K, 1966a. A Complete Survey of Holdings, Tenements and Occupiers in Scilly 1829-31, Part 2, *Scillonian*, **166**
- Matthews, G K, 1966b. A Complete Survey of Holdings, Tenements and Occupiers in Scilly 1829-31, Part 3, *Scillonian*, **167**
- Matthews, G K, 1967-68. A Complete Survey of Holdings, Tenements and Occupiers in Scilly 1829-31, Part 4, *Scillonian*, **168**
- Maybee, R, 1884. *Sixty-eight years' experience on the Scilly Islands*, Penzance
- Mays, S A, 1996. Healed limb amputations in human osteoarchaeology and their causes: a case study from Ipswich, UK, *Int Journ of Osteoarchaeology*, **6**, 101-13
- Mays, S, Turner-Walker, G, and Brown, K, 2002-3. Human bone, in Johns 2002-3, 20-3
- Medieval Pottery Research Group, 2011. *Research Framework for Post-Roman Ceramics*,
- Mercer, R J, 2003. The early farming settlement of south western England in the Neolithic, in Armit, Murphy, Nelis, and Simpson (eds) 2003, 56-70
- Miles, H, 1975. Barrows on the St Austell granite, Cornwall, *Cornish Archaeol*, **14**, 5-81
- Miles, T J, and Saunders, A D, 1971. King Charles's Castle, Treco, Scilly, *Post-med Archaeol*, **4**, 1-30
- Milner, N, Craig, O, Bailey, G, Pedersen, K, and Andersen, S, 2004. Something fishy in the Neolithic? A re-evaluation of stable isotope analysis of Mesolithic and Neolithic coastal populations, *Antiquity*, **78**, 9-22.
- Morris, R, 1969. *Island Treasure: The Search for Sir Cloudeley Shovell's Flagship 'Association'*, London
- Morris, R, 1979. *HMS Colossus: the Story of the Salvage of the Hamilton Treasures*, London
- Morris, R, nd [1978]. *Treasure Trove Islands: the Scilly Isles*, Penzance
- Morris, R, 1982. The Dive which found Firebrand, *Subaqua Scene*, 8-9
- Morris, R, 1984a. Ferrous clib concretion on small guns. *IJNA*, **13(1)**, 65-71
- Morris, R, 1984b. Unidentified artefacts 2. *IJNA*, **13(3)**, 211-14
- Morris, R, 1984c. More finds from Scilly Islands wrecks 2, *IJNA*, **13(4)**, 329-33
- Mothersole, J, 1910. *The Isles of Scilly, Their Story, Their Folklore and Their Flowers*, London
- Mumford, C, 1967. *Portrait of the Isles of Scilly*, London

- Mulville, J, 2010. Wild Things? The prehistory and history of Red Deer on the Hebridean and Northern Isles of Scotland, in T O'Connor and N Sykes (eds), *Extinctions and Invasions: A Social History of British Fauna*, BOLLINGTON
- Mulville, J A, Dennis, I, Johns, C, Mills, S, Pannett, A, and Young, T, 2007. *Islands in a Common Sea: archaeological fieldwork in the Isles of Scilly 2006 (St Mary's and St Martin's)*, Cardiff Studies in Archaeology Specialist Rep, **27**, Cardiff
- Mulville, J A, and Sawyer, K, 2011. *Obadiah's Barrow, Knackyboy Cairn and Old Town Cist ORADS application*, Cardiff University
- Mulville, J A, and Sawyer, K, forthcoming. Radiocarbon determinations from, Knackyboy Cairn, St Martin's and Old Town Cist, St Mary's, Isles of Scilly, *Cornish Archaeol*
- Nance, R M, 1924. Troy Town, *Journ Roy Institution Cornwall*, **21**, 261-279
- Nayling, N, and Caseldine, A, 1997. Excavations at Caldicot, Gwent: Bronze Age palaeochannels in the lower Nedern Valley, CBA Res Rep, **108**, York
- Neal, D S, 1983. Excavations on a Settlement at Little Bay, St Martins, Isles of Scilly, *Cornish Archaeol*, **22**, 47-80
- Neal, D S, forthcoming a. The 1970/1 excavations at East Porth, Samson, *Cornish Archaeol*
- Neal, D S, forthcoming b. Miscellaneous objects of bronze, bone and glass, in Neal forthcoming a
- Neal, D S, forthcoming c. Objects of iron, in Neal forthcoming a
- Neal, D S, forthcoming d. The flints, in Neal forthcoming a
- Needham, S, 2009. Encompassing the sea: 'maritories' and Bronze Age interactions in P Clark (ed), *Bronze Age connections, cultural contact in prehistoric Europe*, Oxford, 12-37
- Noall, C, 1972. *Cornish Seines and Seiners: a history of the pilchard fishing industry*, Truro
- North, I W, 1850. *A Week in the Isles of Scilly*, Penzance and London (reprinted Truro 2006)
- Nowakowski, J, 1991. Trethellan Farm, Newquay: Excavation of a Lowland Settlement and Iron Age Cemetery. *Cornish Archaeol* **30**, 5-242
- Nowakowski, J, 1999. The Excavation of a Bronze Age Settlement at Stannon, St Brevard, *Cornwall Archaeological Unit Excavation Bulletin*, 17 August 2000
- Nowakowski, J, 2001. Leaving Home in the Cornish Bronze Age: Insights into Planned Abandonment Processes, in J Brück (ed), *Bronze Age Landscapes*, Oxford
- Nowakowski, J, Quinnell, H, Sturgess, J, Thomas, C, and Thorpe, C, 2007. Return to Gwithian: shifting the sands of time. *Cornish Archaeology* **46**, 13-76
- Nowakowski, J A and Quinnell, H. 2011 *Trevelgue Head, Cornwall: the importance of C K C Andrew's 1939 excavations for prehistoric and Roman Cornwall*, Truro (Cornwall Council)
- Nowakowski, J, and Johns, C, forthcoming. *Bypassing Indian Queens, Cornwall, - Archaeological Excavations 1992-1994: Prehistoric and Romano-British settlements and landscapes*
- O'Connor, T P, and Kitchener, A C, 2010. Wild, domestic and feral cats, in T P O'Connor and N Sykes (eds), *Extinctions and Invasions: A social history of British fauna*, Oxford, 83-94
- O'Loughlin, T, 1997. Living in the Ocean, in C Bourke (ed), *Studies in the Cult of Saint Columba*, Dublin, 11-23

- O'Loughlin, T, 1999. Distant islands: the topography of holiness in the *Navigatio Sancti Brendani*, in M Glasscoe (ed), *The Medieval Mystical Tradition. England, Ireland and Wales*, Woodbridge, 1-20
- O'Loughlin, T, 2000. *Journeys on the Edges: The Celtic tradition*, London.
- O'Neil, B H St J, 1949a. Excavation of a Romano-British Hut in Scilly, *Scillonian*, **24**, 99, 163-164
- O'Neil, B H St J, 1949b. The Excavation of a Bronze Age House in Scilly, *Scillonian*, **24**, 99, 164-165
- O'Neil, B H St J, 1949c. *Isles of Scilly: Guide to Ancient Monuments*, HMSO, London
- O'Neil, B H St J, 1952. Excavations at Knackboy Carn, *Antiq Journ*, **32**, 21-34
- O'Neil, B H, St J, 1961. *Isles of Scilly MOW Guide*, London (HMSO, 2nd edtn)
- O'Neil, B H St J, nd a. Excavations at Par Beach, St Martin's Scilly, Site A. (unpublished archive transcript), National Monuments Records Office No 904
- O'Neil, B H St J, nd b. Excavations at Par Beach, St Martin's Scilly, Site C. (unpublished archive transcript), National Monuments Records Office No 904
- O'Neil, B H St J, nd c. Excavations at Par Beach, St Martin's Scilly, Site F. (unpublished archive transcript) National Monuments Records Office No 904
- O'Neil, B H St J, nd d. Excavation of May's Hill, St Martin's, Scilly. (unpublished archive transcript) National Monuments Records Office No 901
- O'Neil, B H St J, nd e. Excavation of Hillbenigates Cairn, St Martin's. (unpublished archive transcript) National Monuments Records Office No 897
- O'Neil, B H St J, nd f. Excavation of Hut I on Little Arthur, Scilly. (unpublished archive transcript) National Monuments Records Office No 899
- O'Neil, B H St J, nd g. Excavation of Hut I. Perpitch, St Martin's, Scilly. (unpublished archive transcript) National Monuments Records Office No 906
- O'Neil, B H St J, nd h. The Excavation of a Hut at English Island Cairn, St Martin's, Scilly. (unpublished archive transcript) National Monuments Records Office No 896
- O'Neil, B H St J, nd i. Excavation of a Hut at Little Bay, St Martin's, Scilly. (unpublished archive transcript) National Monuments Records Office No 900
- O'Neil, B H St J, nd j. Pernagiey, St Martin's, Scilly. (unpublished archive transcript) National Monuments Records Office No 905
- O'Neil, B H St J, nd k. Field Notebooks of Bryan O'Neil (unpublished archive transcript), National Monuments Records Office No 915
- O'Neil, H E. 1964. Excavation of a Celtic hermitage on St Helens, Isles of Scilly, 1956-58, *Archaeol Journ*, **121**, 40-69
- Orme, N, 2010. *The Victoria History of the Counties of England: a History of the County of Cornwall, Volume II, Religious History to 1560*, London
- Osborne, J P, 1990. *Scillonian War Diary 1914-18* (2 vols)
- Ottaway, B, and Roberts, B, 2008. The emergence of metalworking, in A Jones (ed) *Prehistoric Europe: theory and practice*, Oxford, 193-225
- Over, L, 1987. *The Kelp Industry in Scilly*, Isles of Scilly Museum Publication, **14**, St Mary's
- Owoc, M A, Adovasio, J M, Illingworth, J, Greek, M, and Manske, K, 2003. Perishables and Pots in Later Prehistory: Unravelling a Distinctive Scillonian Cultural

- Tradition. Lecture presented at the 68th Annual Meeting of the Society for American Archaeology, Milwaukee, Wisconsin
- Padel, O J, 1988. *A Popular Dictionary of Cornish Place-Names*, Penzance
- Pailler, Y, and Sheridan, A, 2009. Everything you always wanted to know about... La Néolithisation de la Grande-Bretagne et d'Irlande, *Bulletin de la Société Préhistorique Française*, **106**, 25-56
- Pannett, A, 2007. Isles of Scilly Museum Lithic Archive: morphology of the collection and potential for further work, in Mulville *et al* 1007, 35-7
- Parkes, C and Ratcliffe, J, 1990. *Early Batteries on the Garrison, St Mary's: Archaeological Fieldwork in the Isles of Scilly 1990*, Truro (Cornwall Archaeological Unit)
- Parkes Lees Architects Ltd, 2009-10. Buildings on Samson, Isles of Scilly: Proposals for Future Conservation. Reports, drawings and specifications for The Isles of Scilly Wildlife Trust
- Parslow, R, 2007. *The Isles of Scilly*, London
- Peacock, D, and Williams, D, 1986. *Amphorae and the Roman economy, an introductory guide*, London and New York
- Pearce, S M, 1978. *The kingdom of Dumnonia: studies in history and tradition in South-Western Britain, AD 350-1150*, Padstow
- Pearce, S, 2011. *The Archaeology of South Western Britain: Recent Research: Papers in Honour of Henrietta Quinnell*, Brit Arch Repts, Brit Ser, **548**, Oxford
- Penhallurick, R D, 2009. *ancient and early medieval coins from Cornwall and Scilly*, Royal Numismatic Society Special Publication, **45**, London
- Pernetta, J C, and Hanford, P T, 1970. Mammalian and avian remains from possible Bronze Age deposits on Nornour, Isles of Scilly, *Journal of Zoology*, **162**, 235-40
- Perez, M, forthcoming. A palaeoecological approach to understanding the impact of coastal change on past societies; using the Isles of Scilly as a case study, PHD thesis, University of Plymouth
- Pettitt, P, 2008. The British Upper Palaeolithic. In J Pollard (ed), *Prehistoric Britain*, Oxford, 18-57
- Pevsner, N, 1970. *The Buildings of England: Cornwall*, London (2nd ed revised by E Radcliffe)
- Piggott, S, 1941. Grooved Stone Cists, Scotland and the Scillies, *Antiquity*, **15**, 81-83
- Piggott, S, 1954. *The Neolithic Cultures of the British Isles*, Cambridge
- Pollard, J, and Healy, F (eds), 2008. Neolithic and Early Bronze Age, in Webster (ed) 2008, 75-102
- Pounds, N J G (ed), 1984. *The Parliamentary Survey of the Duchy of Cornwall*, Devon and Cornwall Record Society, ns, **27**, Exeter (2 vols)
- Pryor, F. 2004. Some thoughts on boats as Bronze Age artefacts, in P Clark (ed), 31-34
- Powell, T G E, 1941. A New Passage Grave Group in Southeastern Ireland, *Proc Prehist Soc*, **7**, 142-3
- Powell, T G E, 1969. *Megalithic Enquiries in the West of Britain*, Liverpool
- Quinnell, H, 1986. Cornwall during the Iron Age and the Roman period, *Cornish Archaeol*, **25**, 111-34
- Quinnell, H, 1991. Prehistoric and Roman Pottery, in Ratcliffe 1991, 73-83

- Quinnell H, 1994. Isles of Scilly Coastal Erosion Project 1989-93: The Pottery and Other Significant Artefacts from Sites with Recorded Stratigraphy: Archive Report, copy in Cornwall and Scilly HER, **ER 557**
- Quinnell, H, 2002-3a. The pottery in Johns 2002-3, 44-50
- Quinnell, H, 2002-3B. The flint, in Johns 2002-3, 44-50
- Quinnell, H, 2004. *Trethurgy: Excavations at Trethurgy Round, St Austell, Community and Status in the Roman and post-Roman Cornwall*, Truro (Cornwall County Council and English Heritage)
- Quinnell, H, 2009-10. The prehistoric pottery, in Taylor and Johns, 109-116
- Quinnell, H, 2010. Prehistoric and Roman pottery, in A M Jones and SR Taylor *Scarcewater, Pennance, Cornwall. Archaeological excavation of a Bronze Age and Roman landscape*, Brit Arch Repts, Brit Ser, **516**, Oxford, 93-113
- Quinnell, H, 2011. a summary of Cornish ceramics in the first millennium BC, *Cornish Archaeol*, **50**, 231-40
- Quinnell, H, in prep a. The prehistoric pottery, in Ratcliffe, Johns and Young forthcoming
- Quinnell, H, in prep b. Early Neolithic pottery, in Neal forthcoming a
- Quinnell, H, in prep c. Cambrian Trevisker paper
- Quinnell, H, in prep d. Stone, in Ratcliffe, Johns and Young forthcoming
- Quinnell, H, in prep e. Flint, in Ratcliffe, Johns and Young forthcoming
- Quinnell, H, in prep f. Pottery in Taylor and Johns in prep
- Quinnell, N, 1978. The Borlase Altar Stone, Tresco, Isles of Scilly, *Cornish Archaeol* **17**, 140-141
- Quinnell, N V, 2009-10. The archaeological revision of Scilly, 1978, by the Ordnance Survey: some recollections, *Cornish Archaeol*, **48-49**, 227-242
- Rainbird, P, 2007. *The Archaeology of Islands*, Cambridge: Cambridge University Press
- Ransley, J, Adams, J, Blue, L, Dix, J, and Sturt, F, (eds) 2011. *England's Maritime and Marine Historic Environment Resource Assessment and Research Agenda*, Oxford
- Ransom, V I, 1984. Catalogue of Perforated Implements from Cornwall and the Isles of Scilly, University of Exeter, unpublished M Phil thesis
- Ratcliffe, J, 1989. *The Archaeology of Scilly: an assessment of the resource and recommendations for its future*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J, 1991. *Lighting up the Past in Scilly: archaeological results from the 1985 electrification project*, Camborne and Truro (Institute of Cornish Studies and Cornwall Archaeological Unit)
- Ratcliffe, J, 1993. *Fieldwork in Scilly: 1991 and 1992*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J, 1994. *Fieldwork in Scilly: July 1993*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J, 1995. *Isles of Scilly Historic Landscape Assessment, report for Land Use Consultants*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J, 1997. *British Telecom Trenching on St Martin's, Isles of Scilly, Summer 1992: the results of the archaeological watching brief*, Truro (Cornwall Archaeological Unit)
- Ratcliffe J, 1999. *Project design and costing for analysis of finds from Porthcressa, St Mary's, Isles of Scilly*, Truro (Cornwall Archaeological Unit)

- Ratcliffe, J, and Johns, C, 2003. *Scilly's Archaeological Heritage*, Truro
- Ratcliffe, J, Johns, C, and Young, A, forthcoming. Results of archaeological recording during the Coast Protection Scheme at Porth Killier and Porth Coose, St Agnes, Isles of Scilly, 1996, *Cornish Archaeol*
- Ratcliffe, J, and Parkes, C, 1989a. *Fieldwork in the Isles of Scilly: March 1989*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J, and Parkes, C, 1989b. Lost and found on Chapel Down: idol speculation, *Cornish Archaeol*, **28**, 259-60
- Ratcliffe, J, and Parkes, C, 1990. *Archaeological Fieldwork in the Isles of Scilly: September 1989*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J, and Straker, V, 1996. *The Early Environment of Scilly*, Truro (Cornwall Archaeological Unit)
- Ratcliffe, J and Straker, V, 1997. The changing landscape and coastline of the Isles of Scilly: recent research, *Cornish Archaeol*, **36**, 64-76
- Ratcliffe, J, and Straker, V, 1998. *Old Town Bay Coast Protection Scheme, St Mary's, Isles of Scilly: Results of the Archaeological Recording*, Truro (Cornwall Archaeological Unit)
- Reece, R, 2011. The Coins, in Nowakowski and Quinnell, 245-56
- Reimer, P J, Baillie, M G L, Bard, E, Bayliss, A, Beck, J W, Bertrand, C J H, Blackwell, P G, Buck, C E, Burr, G S, Cutler, K B, Damon, P E, Edwards, R L, Fairbanks, R G, Friedrich, M, Guilderson, T P, Hogg, A G, Hughen, K A, Kromer, B, McCormac, G, Manning, S, Bronk Ramsey, C, Reimer, R W, Remmele, S, Southon, J R, Stuiver, M, Talamo, S, Taylor, F W, van der Plicht, J and Weyhenmeyer, C E. 2004. IntCal04 terrestrial radiocarbon age calibration, 0–26 cal kyr BP. *Radiocarbon*, 46(3), 1029–58
- Richards, C and Thomas, J, 1984. Ritual activity and structured deposition in later Neolithic Wessex, in R Bradley and J Gardiner (eds), *Neolithic Studies: a Review of Some Current Research*, Oxford, *Brit Arch Repts, Brit Ser*, **133**, 189-218
- Richards, M, and Hedges, R, 1999. A Neolithic revolution? New evidence of diet in the British Neolithic, *Antiquity*, **73**, 891-7
- Richardson, A, and Gill, C A, 1924. *Regional Architecture of the West of England*, London
- Rigold, S E, 1964. The coin, in O'Neil, 66
- Roberts H M, 2012. Optically Stimulated Luminescence (OSL) dating, in Charman *et al* 2012, 138-60
- Roberts, O, 2004. Round the headland or over the horizon? An examination of evidence for British prehistoric efforts to construct a seaworthy boat, in Clark (ed) 2004, 35-50
- Robinson, G, 2007. *The Prehistoric Island Landscape of Scilly*, *Brit Arch Repts, Brit Ser*, **447**, Oxford
- Roger, N, 2004. *The Command of the Ocean*, London
- Rogers, B, nd. *Excavation of HMS Association: Sank 1707, Diver's Report*, Scilly
- Rowley-Conwy, P, 2003. No fixed abode? Nomadism in the northwest European Neolithic, in G Burenhult and S Westergaard (eds), *Stones and bones: formal disposal of the dead in Atlantic Europe during the Mesolithic-Neolithic interface 6000-3000 BC*, *Brit Arch Repts, Int Ser*, **1201**, Oxford, 115-144

- Russell, V, 1980. *Isles of Scilly Survey*, St Mary's and Truro (Isles of Scilly Museum and the Institute of Cornish Studies)
- Sabin, D, and Donaldson, K, 2010. *Five Islands School, St Mary's, Isles of Scilly: Magnetometer and Earth Resistance Survey Report for Kier Western*, Archaeological Surveys Ltd, Ref no 319
- Samuels, J, 1975. A Coarse Storage Vessel in a Clay-lined Pit, Pendrathen, St Mary's, Isles of Scilly, *Cornish Archaeol*, **14**, 117
- Samuels, J, 1996. The Halangy Down pottery, in Ashbee 1996, 81-88
- Saunders, A, 1962. Harry's Walls, St Mary's, Scilly: a new interpretation, *Cornish Archaeol*, **1**, 85-91
- Saunders, A, 2006. *Excavations at Launceston Castle, Cornwall*, Society for Medieval Archaeology Monograph, **24**, Leeds
- Sawyer, K. 2008. *Abbey Farm, Tresco, Isles of Scilly: archaeological recording*, St Mary's (Katharine Sawyer)
- Sawyer, K, nd. Walk Around Hugh Town and the Garrison [leaflet], Isles of Scilly AONB
- Scaife, R G, 1984. A history of Flandrian vegetation in the Isles of Scilly: palynological investigation of Higher Moors and Lower Moors peat mires, St Mary's, *Cornish Studies*, **11**, 33-47
- Scaife, R, 2011. Environmental analysis: pollen, in Johns and Mulville, 17-18
- Schulting, R. 1998. Slighting the sea: the transition to farming in northwest Europe, *Documenta Praehistorica*, **25**, 203-18
- Schulting, R, Richards, M P, and Hedges, R E M, 2003. Sharp shift in diet at onset of Neolithic, *Nature*, **425**, 366
- Scourse, J D, 1985. Late Pleistocene Stratigraphy of the Isles of Scilly and Adjoining Regions, unpublished PhD thesis, University of Cambridge
- Scourse, J D (ed), 1986. *The Quaternary of the Isles of Scilly Field Guide*, Cambridge (Quaternary Research Association)
- Scourse, J D, 1991. Late Pleistocene stratigraphy and palaeobotany of the Isles of Scilly, *Philosophical Transactions of the Royal Society of London*, **334**, 405-488
- Scourse, J D, ed, 2006. *The Isles of Scilly: Field Guide*, London (Quaternary Research Association)
- Seaney, R J, 2010a. *The Druid Temple on St Mary's, Isles of Scilly*, Hawkhurst, (privately produced report)
- Seaney, R J, 2010b. *The High Stone, St Mary's, Isles of Scilly*, Hawkhurst, (privately produced report)
- Sedding, E H, 1909. *Norman Architecture in Cornwall. A Handbook to Old Cornish Ecclesiastical Architecture with Notes on Ancient Manor Houses*, London
- Sheridan, A, 2000. Achnacreebeag and its French connections: vive the 'auld' alliance, in J Henderson (ed), *The prehistory and early history of Atlantic Europe*, Brit Arch Repts, Int Ser, **861**, Oxford 1-16
- Sheridan, A, 2010. The neolithization of Britain and Ireland: the big picture, in B Finlayson and G Warren (eds), *Landscapes in Transition: understanding hunter-gatherer and farming landscapes in the early Holocene of Europe and the Levant*, Oxford, 89-105
- Sheridan, A, Schulting, R, Quinnell, H, and Taylor, R, 2008. Revisiting a small passage tomb at Broadsands, Devon, *Proc Devon Archaeol Soc*, **66**, 1-26

- Shiel, D, 1999. *Geophysical Survey Report 99/103. Dolphin Row, Tresco, Isles of Scilly*, Bradford (GSB Prospection)
- Smallwood, V, and Woodford, S, 2003. *Fragments from Sir William Hamilton's second collection of vases recovered from the wreck of HMS Colossus*, London
- Smith, A, 1863. Narration on the Discovery and Opening of a Kist-Vean on the Island of Samson at Scilly, 3rd September 1862, *Report of the Royal Institute of Cornwall*, **45**, 53-55
- Smith, G, 1984. Excavations on Goonhilly Down, The Lizard, 1981, *Cornish Archaeol*, **23**, 3-46
- Spence, G, 1792. *A Maritime Survey of Scilly*, London
- Stanbrook, E, 2008. *Bishop Rock Lighthouse*, Truro
- Stell, C, 1991. *An inventory of nonconformist chapels and meeting houses in south-west England*, London (HMSO)
- Stevens, T, 2007. *Wreck of Colossus: The find of a lifetime*, St Mary's
- Stevens, T, 2011. *The Search for the John*, St Mary's
- Stevens, T, and Cummings, E, 2008. *Ghosts of Rosevear and the Wreck of the Nancy Packet*, St Mary's
- Straker, V, 2002-3. Overview of the results of the environmental analyses, in Johns, 58-60
- Straker, V, Brown, A, Fyfe, R, Jones, J, and Wilkinson, J, 2008. Later Bronze Age and Iron age Environmental Background, in Webster (ed) 2008, 103-116
- Sturt, F. 2005. Fishing for Meaning: lived space and the early Neolithic of Orkney in V Cummings and A Pannett (eds) *Set in Stone: New Approaches to Neolithic Monuments in Scotland*, Oxford, 68-80
- Taylor, S R, and Johns, C, 2009-10. Archaeological recording of a multi-period site at Dolphin Town, Tresco, Isles of Scilly, 1999-2003, *Cornish Archaeol*, **48-59**, 99-125
- Taylor, S R, and Johns, C, in prep. *Archaeological investigations at Higher Town, St Agnes, Isles of Scilly 2009-10*, *Cornish Archaeol*
- Taylor, S, and Thorpe, C, 2008. Grass-marked pottery found at Trelissick, Feock, *Cornish Archaeol*, **47**, 179-82
- Tebbutt, C F, 1934. A cist in the Isles of Scilly, *Antiq J*, **14**, 302-4
- Thomas, A C, 1956. Excavations at Gwithian, Cornwall 1955: The Early Christian settlement, the Bronze Age barrow group, and medieval manor, *Proc West Cornwall Field Club*, ns, **1** (appendix)
- Thomas, A C, 1957. Some Post Roman Imported Sherds in Cornwall and their origin. *Proc West Cornwall Field Club*, ns, **2, 1**, 15-22
- Thomas, A C, 1959. Imported Pottery in Dark Age Western Britain, *Medieval Archaeol*, **3**, 89-111
- Thomas. A C, 1960a. People and pottery in Dark Age Cornwall. *Old Cornwall*, **5, 11**,
- Thomas, A C, 1960b. Excavations on Tean, Isles of Scilly, 1956 and problems of the Scillonian submergence, unpublished report, University of Edinburgh
- Thomas, A C, 1963. Unpublished material from Cornish Museums: 2 Gunwalloe pottery, Helston Museum. *Cornish Archaeol* **2**, 60 – 64
- Thomas, A C, 1966. The character and origins of Roman Dumnonia, in C Thomas, ed, *Rural settlement in Roman Britain*, CBA Res Rep, **7**, London, 74-98

- Thomas, A C, 1968. Grass marked pottery in Cornwall, in B Coles and D D A Simpson, eds, *Studies in Ancient Europe*, Leicester
- Thomas, A C, 1977. *The Book of the Church in Scilly*,
- Thomas, C, 1978. Imported Late-Roman Mediterranean pottery in Ireland and Western Britain: Chronologies and Implications, *Proc RIA*, **76, C**, 245-255
- Thomas, C, 1979. Three early accounts of the Isles of Scilly, Penzance
- Thomas, A C, 1981. *A Provisional List of Imported Pottery in Post-Roman Western Britain and Ireland*, Institute of Cornish Studies Special report, **7**, Truro
- Thomas, C, 1985. *Exploration of a drowned landscape: archaeology and history of the Isles of Scilly*, London
- Thomas, C, 1988a. *Views and Likenesses: Photographers and Their Work in Cornwall and Scilly 1839-1870*, Truro
- Thomas, A C, 1988b. The Context of Tintagel: a new model for the diffusion of post-Roman Mediterranean imports, *Cornish Archaeol*, **27**, 7-26
- Thomas, C, 1989. The Names of the Batteries on the Garrison, St Mary's, Isles of Scilly, in M Bowden, D Mackay and P Topping (eds), 251-9
- Thomas, A C, 1990. *Gallici Nautae de Galliarum Provinciis – A Sixth / Seventh Century Trade with Gaul Reconsidered*, *Medieval Archaeol*, **34**, 1-26
- Thomas, A C, 1991. Early Medieval Pottery, in J Ratcliffe, 87-92
- Thomas, A C, 1993. *Tintagel, Arthur and Archaeology*, London
- Thomas, A C, 2005. An interim assessment of Post 400, Pre 1200 Native Pottery, and Mediterranean and Gaulish Imported wares in Cornwall and Scilly, unpublished background paper, **3**
- Thomas, C, 2010. A preliminary note on a boat-decorated Bronze Age sherd from St Agnes, Isles of Scilly, privately circulated document
- Thomas, J, 2003. Thoughts on the 'repacked' Neolithic Revolution, *Antiquity*, **77**, 67-75
- Thomas, J, 2008. The Mesolithic-Neolithic transition in Britain, in J Pollard (ed), *Prehistoric Britain*, Oxford, 58-89
- Thorpe, C, 2003. *Mullion Church, Cornwall. Archaeological Watching Brief*, Truro (Historic Environment Service, Cornwall County Council)
- Thorpe, C, 2004. Finds summary report, in S R Taylor, *Dolphin Town Playing Field, Tresco, Isles of Scilly: Archaeological Watching Brief*, Truro (Historic Environment Service, Cornwall County Council)
- Thorpe, C, 2011. *The Early Medieval Native Pottery of Cornwall (c 400-1066 AD)*, in Pearce (ed) 2011, 151-158
- Threipland, LM, 1956. An Excavation at St Mawgan-in-Pyder, North Cornwall, *Archaeol Journ*, **113**, 33-81
- Tilley, C, 1995. Rocks as resources: landscapes and power, *Cornish Archaeol*, **34**, 5-57
- Tilley, C, and Bennett, W, 2001. An archaeology of supernatural places: the case of West Penwith, *Journ Royal Anthropological Inst*, **7, 2**, 335-363
- Todd, M, 1987. *A Regional History of England: the South West to AD 1000*, Harlow
- Tonkin, J C, and Tonkin, R W, 1882. *Guide to the Isles of Scilly*, Penzance
- Townsend, M, 1967. The Common Limpet (*Patella vulgata*) as a source of protein. *Folia Biologica*, **15, 3**, 343-351.

- Tresset, A, 2004. French Connections II: of cows and men, in Armit, Murphy, Nelis and Simpson (eds) 2004,
- Troutbeck, J, nd [c 1794]. *A survey of the ancient and present state of the Scilly Islands*, Sherborne
- Turk, FA, 1960. Deer on the Isles of Scilly, *127th report Royal Cornwall Polytechnic Soc*, 42-49
- Turk, F A, 1968. Notes on Cornish mammals in prehistoric and historic times 1, *Cornish Achaevol*, **7**, 73-9
- Turk, F A, 1971. Notes on Cornish mammals in prehistoric and historic times: 4. *Cornish Archaeol*, **10**, 79-91
- Turk, F A, 1978. The animal remains from Nornour: a synoptic view of the finds, in S A Butcher, 99-103
- Turk, F A, 1984a. A study of the vertebrate remains from May's Hill, St Martins, *Cornish Studies*, **11**, 76-77
- Turk, F A, 1984b. The Sub-Fossil Fauna of Cornwall and the Isles of Scilly, *Cornish Biological Records*, **7**
- Turk F, 1991. Report on Bone Samples from the Isles of Scilly, unpublished Specialist Report for English Heritage and Cornwall Archaeological Unit
- Tyacke, A, 2011. The work of the Portable Antiquities Scheme in Cornwall, *Cornish Archaeol*, **50**, 71-6
- Tyers, P, 1996. *Roman Pottery in Britain*, Batsford
- Vander Linden, M, 2007. What linked the Bell Beakers in third millennium BC Europe?, *Antiquity*, **81**, 343-352
- Van de Noort, R, 2004. An ancient seascape: the social context of seafaring in the Bronze Age, *World Archaeology*, **35**, 404-415
- Vaughan, D, 1984. Seeds, in J G Evans, 30
- Weatherhill, C, 1985. The Ships of the Veneti: a fresh look at the Iron Age tin ships, *Cornish Archaeol*, **24**, 163-69
- Webster, C J, (ed), 2008. *The Archaeology of South West England: South West Archaeological Research Framework Resource Assessment and Research Agenda*, Taunton (Somerset County Council)
- Wessex Archaeology, 2003. HMS Colossus Desk-Based Assessment, Unpublished report for English Heritage, Salisbury
- Wessex Archaeology, 2004. *St Mary's Harbour Geophysical Survey: Archaeological assessment of sidescan sonar and sub-bottom profiling data*, Salisbury
- Wessex Archaeology, 2005. *Pendratheren, St Mary's. Undesignated Site Assessment*, Salisbury
- Wessex Archaeology, 2006a. *Wheel Wreck, Isles of Scilly. Undesignated Site Assessment. Undesignated Site Assessment*, Salisbury
- Wessex Archaeology, 2006b. *Abbey Farm Redevelopment, Tresco: Report on desk-based research and building recording*, Salisbury
- Wessex Archaeology, 2007. *HMS Colossus Designated Site Assessment*. Unpublished report for English Heritage, Salisbury
- Wessex Archaeology, 2008. *Tresco quays watching briefs*, Salisbury
- White, W, 1872. *A Londoner's walk to the Land's End and a trip to the Scilly Isles*, London (3rd edn; first published 1855)

- Whitfield, H J, 1852. *Scilly and its legends*, Penzance and London
- Whittle, A, 1997. Moving on and moving around: Neolithic settlement mobility, in P Topping, (ed) *Neolithic landscapes*, 15-22, Oxford
- Whittle, A, Bayliss, A, and Healy, F, 2011. *Gathering time: dating the early Neolithic enclosures of southern Britain and Ireland*, Oxford
- Wilkinson, K and Straker, V, 2008. Neolithic and Early Bronze Age Environmental Background, in C J Webster (ed), 63-73
- Wood, I, 2010. A new light on Dark Age Gunwalloe: excavations summer 2010, interim report for the National Trust
- Wooding, J, 1996. Communication and Commerce along the Western Sealanes AD 400-800, *Brit Arch Reports, Int Ser*, **654**
- Woodley, G, 1822. *A View of the Present State of the Scilly Islands*, London
- Woodman, P, and McCarthy, M, 2003. Contemplating some awful(ly interesting) vistas: importing cattle and red deer into Prehistoric Ireland, in I Armit, E Murphy, E Nelis, and D Simpson (eds), 31-39
- Young, A, Ratcliffe, J, and Allan, J, 1993. *Cable laying operations at Star Castle, Isles of Scilly*, Truro (Cornwall Archaeological Unit)
- Young, T, 2011. Geophysical Survey, in C Johns and J Mulville, 15, 20-1
- Young, T, forthcoming. Geophysical Survey, in C Johns, J Mulville and E Berry, forthcoming b

11.3 Websites

<http://www.imagesofengland.org.uk/> EH's online database of Listed Buildings

<http://www.scilly.gov.uk/environment/conservation/SHERFfrontpage.htm>

http://www.duchyofcornwall.org/aroundtheduchy_islesofscilly.htm

<http://iosmuseum.org/>

<http://iosmuseum.org/family.html>.

<http://www.ios-aonb.info/>

<http://www.ios-wildlifetrust.org.uk/>

<http://scillypedia.co.uk/ScillyAtoZ.htm>

12 Project archive

The HE project number is **2010098**

The project's digital archive is housed at the offices of Historic Environment, Cornwall Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project file containing site records and notes, project correspondence and administration and copies of documentary/cartographic source material and full copies of the individual specialists' reports (file no 2010098).
2. English Heritage/ADS OASIS online reference: cornwall2-85996

This report text is held in digital form as: G:\CAU\HE Projects\Sites\Scilly\Scilly Historic Environment Research Framework 2010098\Final SHERF Report

The documentary archive is deposited at the Isles of Scilly Museum, Church Street, St Mary's. Isles of Scilly.

