PROCEEDINGS OF THE DORSET NATURAL HISTORY AND ARCHAEOLOGICAL SOCIETY

Edited by
Katherine Barker

Subject Editors:

Ann Smith *Local History* Claire Pinder *Archaeology*

Paul Ensom *Geology* Nigel Webb *Biology*

Iain Hewitt *Bournemouth University* Gordon Le Pard *Dorset Coast*

Morine Krisdottir *Literary Collections*

Index: Claire Pinder

VOLUME 129
2008 (for 2007)

Printed by The Dorset Press, Dorchester, DT1 1HD
Typeset and prepared for press by Val Kinsler, 100% Proof, York YO32 2SB

Offprints of some of the articles in this volume, and from earlier *Proceedings*, are available. Lists may be obtained from the Dorset County Museum. Please state the subjects you require.

Notes for contributors are printed at the end of this volume.

The Society gratefully acknowledges generous assistance in the publication of three papers in this volume.

The paper by David Reeve (The Decline of Holt Forest, Chase and Park, Wimborne Minster, Dorset, in the 17th Century), pp. 1–16, won the Mansell-Pleydell Essay Prize for 2007, and is published with the aid of a grant from the Mansell-Pleydell Trustees.

The papers by Tim Carew (An Early Bronze Age Timber Structure, a Saxon Kiln and Saxon and Medieval Occupation at Coppice Street, Shaftesbury, Dorset), pp. 59–96, and by Andy Leonard (Late Iron Age and Romano-British Burials and associated activity at the former allotments, Church Knapp, Wyke Regis, Weymouth), pp. 115–126, are published with the aid of a grant made by the AOC Archaeology Group.

ISSN 0070 7112

CONTENTS

The Dorset Natural History and Archaeological Society came into existence in 1928 with the coming together of the Dorset County Museum (founded in 1845) and the Dorset Natural History and Antiquarian Field Club (founded 1875). The County Museum was Dorset's first conservation body, coming into existence as it did in opposition to a plan of Kingdom Isambard Brunel to drive the line of his railway through Poundbury hillfort west of Dorchester and Maumbury Rings to the east.

The Collection had several homes in Dorchester and Sherborne until the early 1880s when a public subscription headed by the Prince of Wales raised the money to buy the site of the George Inn and employ G.R. Crickmay to design the first part of the present building in High West Street. The Museum was opened by the 'father' of British Archaeology, General Augustus Henry Lane Fox Pitt-Rivers on 7 January 1884. In 1938–9, Handel (now Williams) House was added to the property through the generosity of Sir Robert Williams.

Between 1963 and 1978 the Society launched a successful public appeal and the fabric was put in order, heating installed and an extension designed by Michael Brawne was built to provide a multi-purpose gallery for temporary exhibitions, lectures and conferences as well as a new archaeological gallery and schoolroom. All Saints' Church in High East Street, redundant in 1972, was converted to accommodate the largest archaeological reserve collection in the south-west and more property has since been bought in Colliton Street for future expansion.

The Society exists to collect, conserve, record and publish the geology, palaeontology, natural history, archaeology, architecture, local history, fine and applied arts, textiles and literature as they pertain to the County of Dorset. And these are promoted through displays and exhibitions, lectures, field meetings and the many events that comprise the annual programme. Dorset has a well-deserved reputation for its archaeology and geology and for its literary figures. The Society's collections are of international importance.

The Society also exists to promote research in these many Dorset-related fields. It publishes an annual *Proceedings* of academic papers and shorter contributions, reports from archaeological units working in the county and natural history reports. The well-regarded Dorset Monograph occasional series supplements the *Proceedings*, which allows for the publication of much longer reports. The Society also publishes books, pamphlets and postcards.

Over many years the Society has built up an important library housing a comprehensive collection of books, papers, articles, prints and drawings related to Dorset and a number of rare sources available for research. The Society subscribes to a number of leading archaeology, geology, and natural history journals. The whole library is currently undergoing a complete re-cataloguing project to improve access. Anyone interested is invited to contact the Hon. Librarian.

The Society has two websites:

the Museum site is
http://www.dorsetcountymuseum.org/

the Research site is
http://www.dorsetcountymuseum.org/research/

The Research site presents a calendar of forthcoming events organised by the Society and its specialist interest groups, information about membership including an application form, and details of the Society's publications including a cumulative Index to the *Proceedings* from Volume 1 to the present. An on-line form is provided for ordering copies of publications and offprints.

Articles intended for publication should be sent to the Hon. Editor c/o the Society. Please see Notes for Contributors.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 1–16

The Decline of Holt Forest, Chase and Park, Wimborne Minster, Dorset, in the 17th Century[1]

DAVID REEVE

Introduction

During the medieval period hunting was seen as an important pastime by the aristocracy and this pursuit left its marks on the historical rural landscape. The Crown had its own Royal Forests so they and their retinue could visit and hunt. As well as this the Crown would similarly give permission for the local gentry to hunt in enclosed chases, areas sometimes set aside within the Royal Forest. Parks would be granted, usually to the local lord of the manor, for the hunting or raising of deer. These parks were often enclosed by large banks and ditches or even fenced with wooden pales. The right of free warren would be granted to the lord of the manor for smaller game such as rabbits and game birds.

While this way of life had been established from at least the 11th century, by the end of the 16th century the rural economy was undergoing great change, with new farming techniques and practices being introduced. The park, the warren, the chase and the forest were all under threat and these areas slowly began to be eroded. This article will look at one such forest, Holt, in Wimborne Minster parish. It will start by looking at contemporary and near-contemporary sources and compare these with more recent interpretations and theories, to try and rediscover the physical boundaries of Holt Park, Chase and Forest. The paper will then look at the changing landscape to try and understand its impact on the medieval forest and how this led to confusion in the 17th century about what and where the forest and chase were.

Holt Forest lay within the east Dorset parishes of Wimborne Minster and Horton. Wimborne Minster is a large parish that until the end of the 19th century consisted of 11,968 acres. Because of its size it was divided into a number of tithings for administrative purposes: Abbotstreet, Barnsley, Cowgrove, Leigh, Thornhill, Stone and Wimborne town. The boundaries of these tithings have never satisfactorily been defined though their general areas are given in Figure 1. By the beginning of the 17th century there were two principal landowners: the Hanhams, who owned the manors of the town or Deanery, Abbotstreet, Leigh and Wilksworth; and the Kingston Lacy manor that comprised much of the rural parts of the parish and the northern part of the town. It was held by the Crown/Duchy of Lancaster until the early part of the 17th century when it was sold to the Blount family of the neighbouring parish of Canford Magna. They in

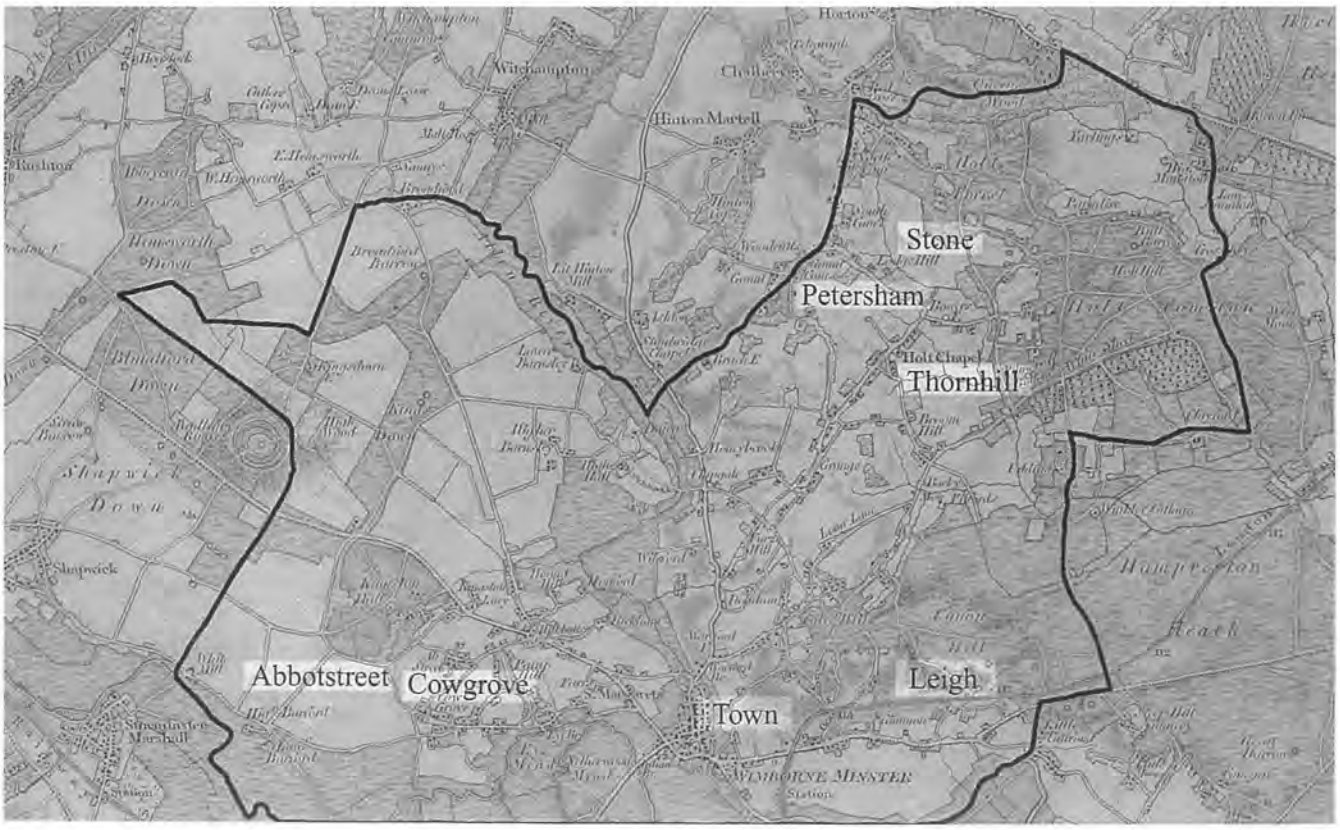


Figure 1: The Wimborne tithings

turn sold it to the Bankes family in 1636. Horton parish lay to the north of Wimborne Minster with the Uvedales as the principal landowners in the mid-16th and 17th centuries.

Kingston Lacy Manor, Park and Badbury Warren

Before discussing Holt Forest in detail it needs to be put into its historical context. The area was within the manor of Kingston Lacy. The ownership of Kingston Lacy is a complicated one. Kingston does not appear in Domesday; probably it was held by the Crown. Its place-name alone (the King's tun) suggests it was a Saxon Royal manor. The Earls of Leicester held the manor during the 12th century before it passed to the Earls of Winchester. The de Lacy family held it from 1229. The estate passed to the Dukes of Lancaster and later to the Dukes of Somerset before passing back to the crown in the 1540s. The estate was then managed by the Duchy of Lancaster before being sold in the 17th century. Many of these Dukes were part of the extended Royal family and would have used the Royal Forest to hunt.

The medieval Kingston Lacy manor house was probably built in the 13th century for the de Lacy family. Following the death of John Beaufort, Duke of Somerset, in the 1440s the estate was taken back by the Crown and all profits divided. The house was abandoned and the Duchy of Lancaster ran the estate as absentee landowners. Before this took place the manorial accounts refer to two deer parks within the manor, Holt Park, discussed later, run by the Holt Forester and Park Keeper, and Kingston Lacy Park, run by the Warrener and Park Keeper of Badbury. Kingston Lacy Park is first mentioned in 1348 when the Countess of Lincoln complained about illegal hunting and the removal of trees within her park at Kingston Lacy.[2] The manorial court accounts also make references to repairs being made to the fences and to the deer. References to the Park end after the 1460s.[3]

The warren is first mentioned in manorial accounts in 1295 and was used for keeping large amounts of rabbits,[4] as well as containing foxes, hares, wildcats, boar, pheasants and partridges.[5] Following the abandonment of the manor house the warren was leased to tenants such as Robert Shorte and John Sebrey alias Rogers, who held 2000 couples of coneys when they took on the lease in 1628.[6] By 1740 there were over 3000 couples. An uncatalogued map of Badbury Warren, drawn up in 1742 shows the boundary of the area.[7] With field names such as Deerhill and Watch House it is possible the warren and the park were within the same enclosed area shown by the map. This is further supported by the fact that medieval Badbury Lodge, which still survives today, is shown in the south-west corner of this area.[8] The Lodge would have been used (or leased) by the warrener and park keeper. The Warren was removed in 1742 and was converted to farm land.[9]

The Location of Holt Forest

A forest is first mentioned at Holt in Domesday when it was referred to as Wimborneholt and is also mentioned in a charter of 1267.[10] This suggests that the Royal Forest was in place before the Kingston Lacy manor house was built and was likely to have been established and used by the Saxon royalty. The extent of the Forest, Chase and Park is difficult to define though some research has already been carried out to try and identify the boundaries.[11] Two recorded perambulations have survived. The first dates from the reign of Edward I, sometime in the last quarter of the 13th century. There are only a few boundary points so it is difficult to pinpoint the exact location:

> By the two oaks called the two sisters by the Kings highway to Manitone [Mannington]. From thence by the Rygwaye to Uddynge [Uddens]. From thence to Wodekesworth [Wilksworth] and from thence to Horton through the middle of the village to the two oaks[12]

These boundaries have been analysed by Clegg and he rightfully places the two oaks on the road from Horton to Mannington. The ancient road from Mannington to Uddens (modern day Burts Lane) is the likely 'Rygway'. He believes the southern boundary ran to Walford Bridge onto Wilksworth and via Gaunts to Horton.

There is a far more detailed perambulation given in a Duchy Survey of the estate in 1595.[13] This has been analysed by Warren and a proposed perambulation given by him. However, he believed the northern boundary marker known as Horton Cross was at Three Legged Cross. Based on this assumption he believed that the northern boundary of the Forest followed the pre-19th-century Wimborne Minster and Horton parish boundary. However, two 17th-century maps that were unavailable at the time of this research identify the exact location of Horton Cross.

The first of these, surveyed by Richard Harding *c.* 1622, shows Horton Cross in the centre of Horton village, shown in Figure 2, with the boundary running eastward along the Horton to Mannington road as far as the 'Mannington Oaks', shown in Figure 3. This ties in with the Edward I perambulation, which clearly has the northern boundary running along the Horton to Mannington road. It is possible that the Mannington Oaks were on the site of the 13th-century 'two sisters' since this was the meeting point for the local manorial court. Mannington manor was held by the Queen's College Oxford and the court book entry for 1651 records:

> It was ordered that the tenants of this manor [Mannington] shall meet with Sir Anthony Ashley Cooper's tenants upon the three and twentieth at Mannington Oak, and there to set out the Ancient bounds upon pain of everyone making default to forfeit 3s 4d[14]

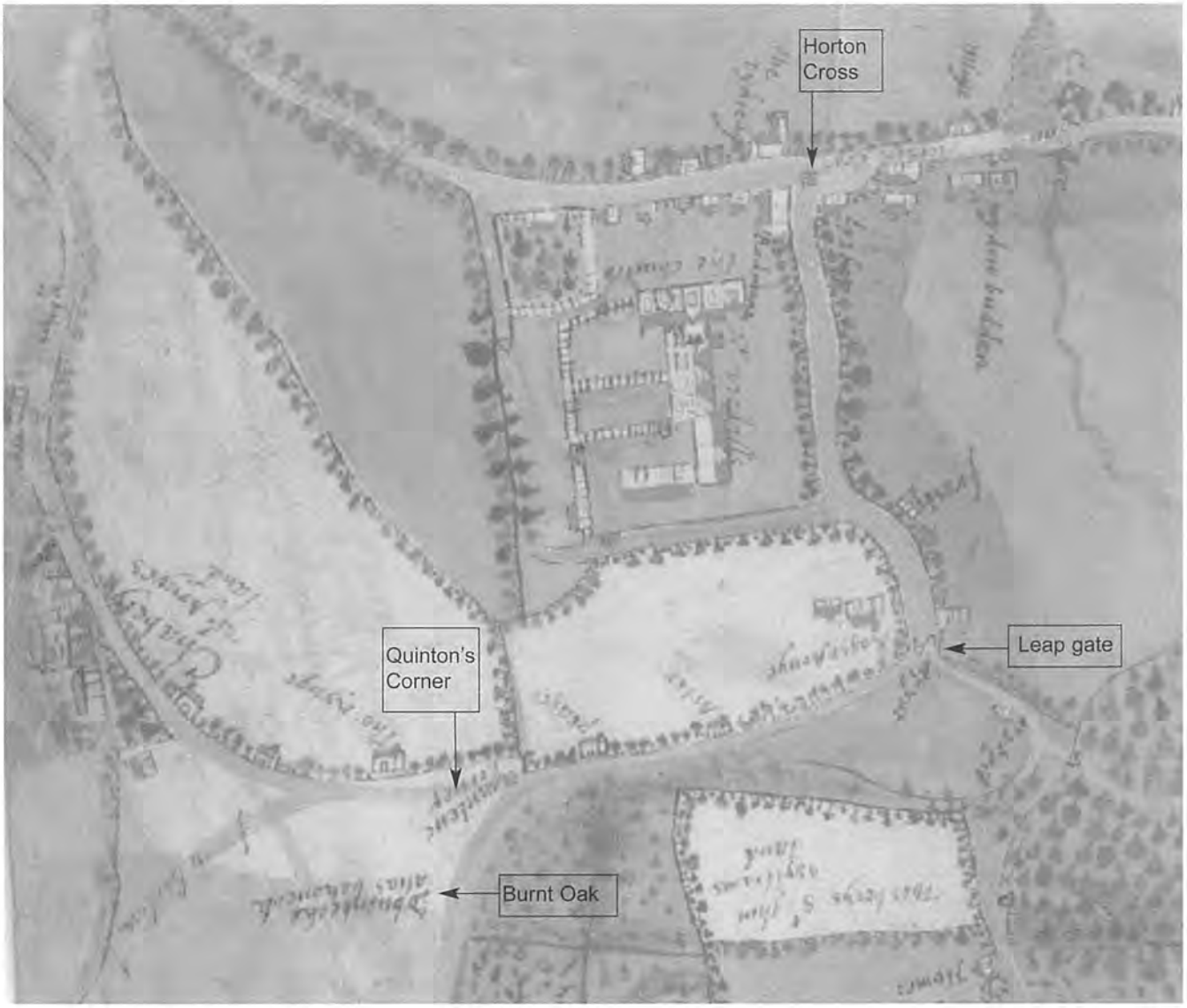


Figure 2: Detail from Richard Harding's Map of Holt Forest 1622 showing the village of Horton with a number of boundary points

As will be shown below, this is not the first time that confusion over the extent of the northern boundary of the forest has arisen, since in 1612 a legal dispute arose between the Blount family of Kingston Lacy manor and the Uvedales of Horton manor. While the manorial boundaries between the two follow the present parish boundary, the forest boundary included much of the southern part of Horton parish, as far as the village.

There is also some confusion over the extent of the south-eastern part of the forest boundary. As well as the two perambulations already discussed, a third undated perambulation survives, copied from the Duchy Office after the 1595 perambulation but before 1603 when the Duchy sold the property: they are given in full in Appendix 1.[15] The earlier two perambulations share many boundary points, though the 1595 one is given in more detail. However, the post 1595 perambulation is even more detailed with a significant number of boundary points being shown on the Harding map, some highlighted in Figure 2. When comparing the later two perambulations there is a significant difference around the Uddens estate in the south-east corner of the forest, and this needs to be understood before trying to use the sources to reconstruct the boundary.

The medieval and 1595 perambulations show that the boundary ran to the south of Uddens estate, which was a detached part of Chalbury manor. According to the earlier two perambulations, the south-eastern boundary ran as far south as Dowgerford or Horsford (modern day Ameysford, a derivation of the surname of 16th-century lords of the manor, the Arney family), along Uddens Water to Clayford and then along the stream until Pilford Lane. However, the post 1595 perambulation states that it went from Broomhill 'soe to White shute [Whitesheet], from thence to Uddinges Crosse', running to the north of Uddens manor. The map of 1622 shows the Forest boundary going to the north of Uddens.[16] Since the map also shows that this was the 'farthest part of Mr Arneys challenge' it is likely that this was a legal redefining of the boundary to show Uddens manor as outside of Kingston Lacy manorial control, shortly before the estate was sold to the Earl

1 Mannington Oaks
2 The High Cross
3 The Leap Gate
4 Linning Hill
5 Quintons Corner
6 Bacon Oak alias Burnt Oak
7 Red Cross
8 The House of Margery Stringer
9 Petersham Green
10 Vyekes Door
11 Walford Bridge
12 The two Bridges
13 John Osborne's Door
14 Colehill Lane
15 Holman Stubbes
16 Broom Hill
17 Uddens water
18 Dowgersford/Horsford/Ameysford
19 Dowagers Copse
20 Newnham Lane

Figure 3: The boundaries of medieval Holt Forest with the combined boundary points from the 1595 and post 1595 perambulations

of Shaftesbury.[17] The Blounts had lost a costly legal dispute with the Uvedales of Horton some years earlier over the bounds of Holt Chase (discussed below) and it is likely that they did not wish another dispute. This shows that by the beginning of the 17th century, forest and chase boundaries were getting confused with parish and manor boundaries.

It would appear that this later perambulation was used by Harding when he drew up his map for the Blount family, drawing up a document which defined the newly agreed boundary to the north of Uddens estate. The Forest boundary now concurred with the manorial boundary so no confusion would be created. If one takes the remaining boundaries in the Harding map and later perambulation and use the 1595 perambulation for the south-east corner, then the full extent of the medieval forest boundary can be reconstructed and is shown in Figure 3.

The Location of Holt Park

A deer-park is first mentioned at Holt in 1295, 11 furlongs and 16 perches of ditches put around a new park with hedges and fences constructed. The possible bounds of this earlier park will be discussed in the Holt Chase section below. By the 16th century the original park was replaced by a new one but its location has caused some debate among local historians, particularly regarding its eastern perimeter. Cantor and Wilson

Figure 4: Detail from Richard Harding's Map of Holt Forest 1622 showing the paling around Holt Park, the Lodge and pound

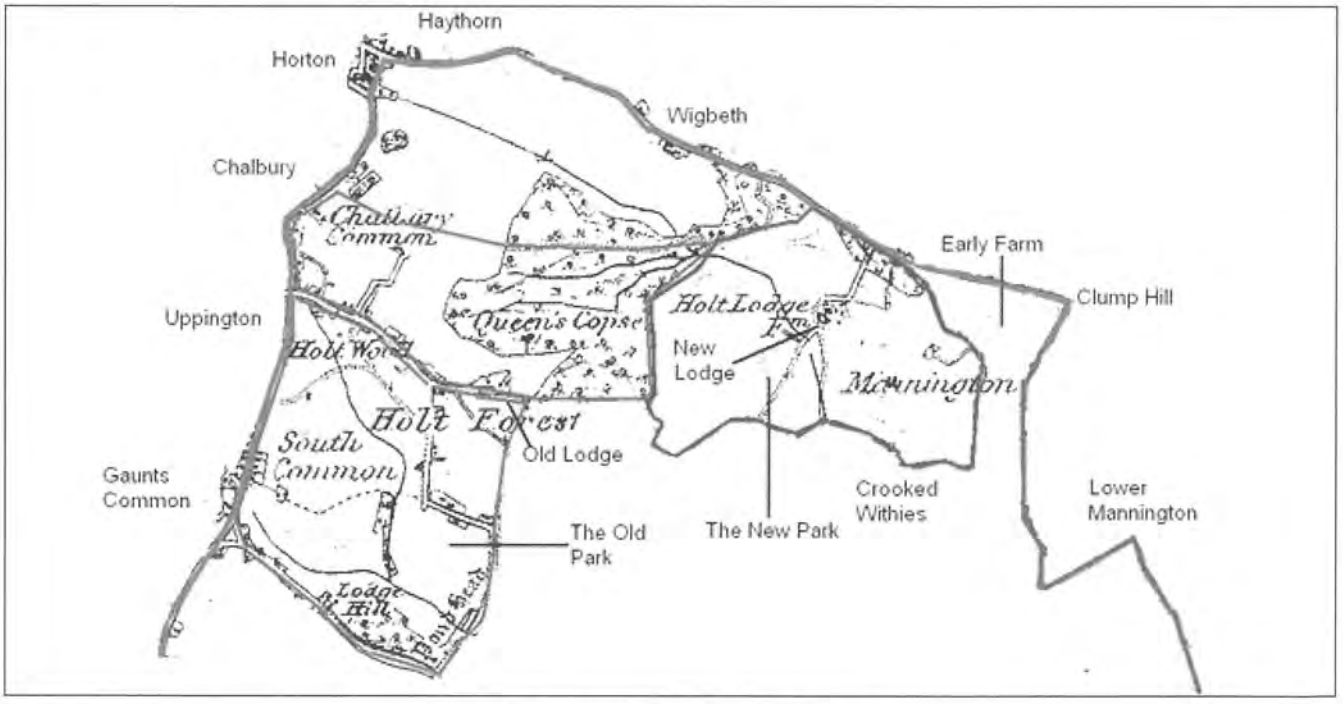


Figure 5: The Old and New Park at Holt

believed the boundaries of the New Park were west of Early Farm whereas Colonel Drew believed it was to the east of this farm.[18] The Harding map of 1622 resolves this debate since it shows the Park still paled as shown in Figure 4.[19] The map shows the Park paling running to the west of Early Farm; it was the Forest boundary that ran further east of the farm and it is likely that this is what confused Drew. The northern, western and southern boundaries of the Park can still be easily seen in modern field boundaries and traces of the boundary ditch still remain. The boundaries of the New Park are given in Figure 5.

A Possible Location of Holt Chase

Evidence suggests that the old park formed part of an area later called Holt Chase. It is unlikely that the wider forest area was used for hunting by the Crown after the manor house at Kingston Lacy had fallen into disrepair by the 1540s. However, hunting was carried out well into the 16th century in an area known as Holt Chase. By the 17th century the terms 'chase' and 'forest' were being used interchangeably on the estate, but there is a strong possibility that there was a separate chase granted by the Crown for the local gentry to hunt in. An uncatalogued, undated, mid-17th-century map in the Kingston Lacy archive survives and shows the area to the west of Holt Park.[20] This area was enclosed in 1637 and contemporary documents refer to the area as being Holt Chase.[21] There is a strong possibility that the map depicts the medieval Holt Chase just before it was enclosed. The map shows two enclosed areas; the northern section contains the area from the Wimborne/ Horton parish boundary as far south as the road from Uppington through Holt Wood and contains much of Queen's Copse and Burnt Oak Copse. The second area runs from the same road as far south as the road from Red Cross to the north of Holt and contained Aldermoor coppice and 'the land within the rayles' at Little Lodge Farm. The area is shown in Figure 6. The 17th-century map still shows the northern extent of the chase as still being paled at that time. There is a clear bank and ditch running along the eastern extent of this area, though it is possible that these features relate to the 1630s enclosure discussed below. However, at least one 17th-century lime tree, often associated with this type of enclosure, has been located, planted on top of the bank, which suggests the bank, predates the enclosure.

Within the southern part of the chase there is an interesting feature which still survives as an earthwork. It is recorded in the Ordnance Survey and described as the Pond Head (as shown in Figure 6). Cantor and Wilson discussed this feature and state that, following investigations in the 1950s the Ordnance Survey was convinced that the feature was of 18th-century origin. Based on this, Cantor and Wilson believed that it was linked with a large artificial lake constructed by Henry Sturt of Horton in the early 18th century.[22] However, the Harding map of 1622 shows the feature as a large lake described as 'The Pond'. This was clearly used for the deer as well as maintaining a stock of fish. The 1606 Kingston Lacy Manorial Survey states that Sir Ralph Horsey, the tenant of Holt Lodge, had fishing rights for the chase though he had to stock the pond.[23] This relates to the feature shown on the map and is part of the medieval landscape.

Field-name evidence in the area suggests that the park depicted on the Harding map was originally elsewhere within the forest in the medieval period. The Duchy of Lancaster report of 1595 states 'that there hath been heretofore one other lodge in a place cawled the olde park which house was a verie simple house and

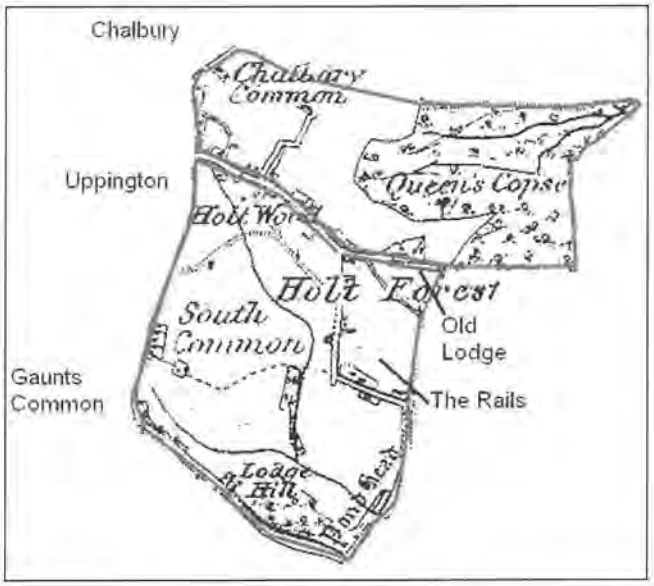


Figure 6: The boundaries of Holt Chase

now all down'.[24] In 1598 it is recorded that Olde Park Copse was also known as Aldermoor Copse.[25] Aldermoor Copse is located in the southern area of the chase, adjacent to a small property called the Little Lodge, now known as Little Lodge Farm. It appears, therefore, that the original park was the southern part of Holt Chase with Little Lodge Farm being the likely site of the original medieval lodge. It is interesting to note that the 17th-century maps show the farm to the south of the road whereas the building is now to the north. It is not known if any archaeological remains survive of the medieval lodge to the south of the road.

The Management of the Estate: The end of Crown Ownership

The Duchy of Lancaster owned Kingston Lacy manor, along with Holt Forest, Chase and Park and Badbury Warren throughout the 16th century and many references appear in the Duchy archive.[26] A number of reports reveal that during the last third of the century the Duchy were increasingly concerned with the local management of the estate.[27] This was not uncommon on Crown land estates, with tension arising between the management and patronage.[28] Much of this concern centred on the misuse of timber by the keeper of Holt Forest. The Duchy would appoint a keeper, usually a member of the local gentry, to run the Forest part of the estate. They would be granted Holt Park and Lodge (though they often leased it to a tenant), and had certain timber and fishing rights granted to them. The present farmhouse, shown in Figure 7, was the largely rebuilt 16th-century Holt Lodge. The 1606 Kingston Lacy survey records Sir Ralph Horsey as the tenant of Holt Lodge, which included the custody of the park, herbage and panage, all the deer in the park and chase and four score cartloads of wood and fishing rights, though he had to stock the pond.[29]

Figure 7: Holt Lodge Farm 1919 (DHC D/HRW: uncatalogued)

The regulation of timber rights had always been closely supervised by the manorial courts and no less than eight of the 41 customs of the manor specifically related to the control of timber use. While the manor house at Kingston was occupied, both tenants and the Lord of the Manor appear to have complied with these customs. There are numerous entries in the manorial court rolls showing timber and trees being granted for the upkeep of the manor house. In 1402/3 a man was paid 2s for carting wood from Holt to the courtyard of the manor house for making laths.[30] In 1426/7 John Farre, carpenter, was paid 6d for choosing timber in Holt for repairing the manor house.[31] In 1428/9 a large number of cartloads of timber were removed from Holt Forest for repairs to the manor house.[32] Timber from the forest was also used for other buildings and purposes. In 1380/1 three carts were hired to carry timber to the town to make a new pillory[33] and in 1422/3 Thomas Browning was hired to fell 10 oaks from Holt to make a new house.[34]

However, once the manor house was abandoned around 1540, the manor court either ignored or was powerless to prevent numerous transgressions by the Duchy-appointed keepers of the Forest. In the 16th century men such as Sir Thomas Shirley and Andrew Rogers were important landed gentry who either ignored or intimidated the local court officials to exploit the estate. Complaints were clearly made and Duchy officers made attempts to curtail the keepers' activities. A number of reports reveal that during the last third of the century the Duchy were increasingly concerned with the local management of the estate. In 1563 there was a Commission report enquiring into the number of dead trees and value of some of the copses. In 1566 a new survey was carried out to investigate the quantity and quality of the timber and if any had been felled without permission and in 1568 a complete survey was ordered. This appears to have satisfied the authorities until the 1590s, when again there was a flurry of Duchy activity. In 1595 a survey, including the perambulation of the forest, took place led by Sir John Pointz, the Duchy surveyor. The report records the recent felling of timber, including a number of saplings for the Wimborne Minster spire. There were 80 deer in the forest and chase and 60 in the park.

The 1598/9 inquisition of Holt Forest serves as a good example of the problems that the Duchy had to face.[35] The local commissioners were very critical of the

previous keeper, Sir Thomas Shirley, who had been systematically stripping the coppices and selling the timber. It was reported that in 1595 he sold 27 loads of birches from the forest. The following year it was estimated that he removed and sold 413 trees from the chase at a profit of £191 16s 4d, £20 worth of timber from Burnt Oak Coppice which 'was utterlie spoyled by meanes of the ill fencinge which shoulde have byn don by Sir Thomas Sherley or his assignes' and £70 worth of timber from Old Parke Coppice alias Aldermore Coppice. In 1597 he pulled down and sold 180 trees at 8s 7d a piece from the chase and in 1598 the new keeper, Andrew Rogers, was alleged to have cut down 40 loads of 'brewce' wood and 32 other trees from Holt Park. This, then, demonstrates the large-scale deforestation taking place at the time by the keepers.

As well as the exploitation of timber the inquisition uncovered a number of encroachments within the forest, including 9 or 10 poor persons within the forest, at Crooked Withies just south of the park, as well as local landowners such as Sir Matthew Arundell who owned Hampreston manor which abutted the eastern boundary of the forest and John Arney, who held the adjacent manor to the west at Chalbury. Both men were trying to take advantage of an absentee landowner by enclosing parts of the waste on Holt Heath, 200 acres in the case of Arundell and 400 acres in Arney's case, who was also preventing the legitimate cutting of turf by copyhold tenants.

The keepers were not looking after deer or maintaining the park and chase paling. The keepers 'hath kylled manye of the deare themselves' and the paling in the park was in such disrepair that they could not estimate the size of the herd. This deterioration had taken place in a short space of time, since in 1591 it had been reported that there were 200 deer in the park despite being ill paled and it was supposed that there were a further 200 deer within the forest.[36] The Duchy replaced Andrew Rogers with Sir Edmund Uvedale of Horton as the new keeper.

The Management of the Estate: The Sale of the Estate to the Blount Family

In 1606 the Crown sold the Kingston Lacy estate, including Holt Forest, Chase and Park, to the Blount family of the neighbouring manor of Canford Magna. Following this sale neighbouring land owners continued with attempts to claim land from the Kingston Lacy estate, particularly in the Holt Forest area of the manor, with four Chancery court cases taking place between 1612 and 1637. The first dispute began in 1612 between Mountjoy Blount and Sir William Uvedale of Horton. It appears that Sir William Uvedale was taking advantage of the confusion surrounding the boundary of the forest, the chase and the hunting rights that the Blounts had in two coppices, including Priors Copse, that were within Horton manor. Unfortunately, none of the documents give the verdict of the court case, which was heard at Star Chamber. It seems likely that the court ruled that Priors Copse was within the manor of Horton. In 1637, a year after the Bankes family had purchased Kingston Lacy from the Blounts, the area immediately south of this copse was enclosed. The map that was drawn up by the estate at the time shows Priors Copse in Horton Manor.[37] However, it is unclear whether the Bankes had any hunting rights within the copse since it still lay within the old Holt Forest boundary and not the Chase.

It is likely that the Blounts and others were confused about the extent of the chase (as seen above this coincided with the parish boundary of Wimborne and Horton and the manor boundary between Horton and Kingston Lacy) and the forest boundary that went as far as Horton village. While the Crown had previously had hunting rights within the forest as far as Horton, the local gentry had hunting rights within the chase area only. The Blounts, therefore, had no hunting rights in the forest area to the north of the chase.

While the case against the Uvedales was proceeding, a claim was made by the Hanham family for an area on Colehill waste. On 19 October 1613 Penelope Hanham, widow, demised to Henry, one of her younger sons, four messuages, orchards and gardens along with 14 acres of land on Colehill. Hanham claimed that these tenements, as well as the area around them were part of the manor of Leigh. Three tenants, Havard, French and Keeping claimed they were in Kingston Lacy manor. A trial was held in Dorchester on 20 July 1616 and found in favour of the tenants, agreeing that the area north of the bowling green on Colehill was part of Kingston Lacy manor.[38] The Blount family were probably supporting their tenants in the proceedings.

The 1622 Harding map is the only clue to a third dispute between the Blount and Arney families.[39] The Arneys owned the manor of Chalbury and the detached part of the manor at Uddens, near Holt. The map includes a statement on the northern boundary between Uddens and Kingston Lacy manors, 'the farthest part of Mr Arneys challenge', a clear indication of the reason for the map.[40] No other documents concerning a legal dispute survive at the time and it is possible that the dispute was settled without court action. Since it is likely that Blount had lost the case with the Uvedales in 1611 it seems likely that they wished to avoid another costly suit over manorial and forest boundaries. Soon after the map was produced the Arney family sold the estate to the Earl of Shaftesbury and it appears that the map was drawn up to illustrate the decision to make the forest boundary follow the manor boundary to avoid any confusion over rights, no doubt a reaction to the earlier confusions which led to the dispute with the Uvedales.

The Arneys continued to lease the Chalbury and Uddens from Shaftesbury and tension between the Arneys and Blounts continued. In October 1636 Alexander Arney was presented at the Kingston Lacy

manorial court for encroaching on Holt and stopping up Whitemoor Lane, one of the roads between Wimborne and Ringwood going through the middle of Uddens manor.[41] Presentments continue throughout the next two years in manor court proceedings. In October 1639 he was fined £14 for refusing to throw open the enclosure.[42] Among the Kingston Lacy archive some depositions survive which were taken in November 1633.[43] It appears that Blount decided to use his manorial court to put added pressure on Alexander Arney because of the slowness of the legal case. The action finally took place at Shaftesbury on 6 July 1637, a year after Blount had sold the estate. The result of the legal dispute is not recorded though it appears that the Blount family won the case since the road was opened up and the boundary between the two manors, as depicted on the Harding map, remained.[44]

The Enclosure of Holt Chase

Once the Kingston Lacy estate had been purchased by Sir John Bankes in 1636 he lost little time in trying to increase the value of the estate by enclosing the medieval Chase. This enclosure typifies a type of action that has become known as enclosure by agreement. Until the 1960s historians concentrated on two main periods of enclosures; that of the medieval/tudor period to the end of the 16th century, typified by landlords imposing enclosure on tenants, and the period from the 1750s, epitomised by enclosure by Act of Parliament. Historians have now re-evaluated this theory and have come to recognise the importance of enclosure during the 17th century.

One of the early exponents of 17th-century enclosure was Maurice Beresford. In his pioneering work on lost villages in the 1950s, Beresford identified a type of enclosure that came about as a result of an agreement between landlord and tenants.[45] He returned to this theme in more detail in later works.[46] This view on agreement has been recently challenged by a number of historians.

Martin believes that many of these types of enclosure did not meet with the approval of tenants.[47] His detailed case study on the 1607 Midland Revolt has revealed a number of examples where the numbers of tenants were reduced prior to the actual enclosure of land, forcing those remaining tenants to submit to the new changes. In other cases it was only the agreement of freeholders that was reached and the wishes of tenants not sought or ignored. Most importantly for Martin was the vehement opposition to them. Additional indirect evidence that such enclosures transgressed the interests of the peasantry is given by the fact that they elicited fierce hostility from them. Many agreements examined in Chancery have references to enclosure rioting. The 1607 Midland riots were centred on an area that had experienced enclosure by agreement at the cost of considerable depopulation.[48] However, it was not just in the Midlands that a backlash was seen against enclosure. Clay has argued that 'there was prolonged and well-organised resistance' to enclosure in Royal Forests between 1628 and 1631 and cites Dorset as well as Wiltshire and Gloucestershire, Lincolnshire and Cambridgeshire as examples.[49]

Underdown's research on Somerset, Dorset and Wiltshire reveals a gradual change in farming practices. 'Much enclosure was piecemeal, by exchange or consolidation of holdings, as often undertaken by yeoman and husbandmen as by rich landlords depopulating whole villages'.[50] He does, however, cite a number of examples where depopulation clearly took place, at Iwerne Courtney and in the South Winterbourne valley.[51] In other places Underdown illustrates the decline in rural community identity with the failure of a number of parishes to carry out Rogationtide perambulations due to newly erected enclosures preventing the ceremonies; examples include Netherbury, Long Burton and Melcombe Regis.[52]

In his research on Dorset agriculture, Casada argues that most land enclosed during the 16th and 17th century was ground that had passed directly from forest.[53] He argues that the common land that was enclosed, which usually only took up a part of the commons, tended to be by mutual agreement and cites two 16th-century examples at Long Bredy and Iwerne Courtney.[54] In the case of Iwerne Courtney, Underdown's conclusions contradict Casada's views. Bettey's work on enclosures at Gillingham, Stour Provost and Stalbridge questions the assumption that enclosure was by mutual agreement.[55] Bettey's work represents the only detailed work carried out on enclosure disputes in Dorset and is therefore an important bench mark to compare enclosure and reactions to it within Wimborne parish. Gillingham Forest was owned by the Crown, and during the 1620s a programme of deforestation was begun in an attempt to raise revenue. Despite strong local opposition Gillingham forest was enclosed in 1626.[56] It seems clear that many of the tenants felt that they had been deceived and made complaints. A Commission met in 1627 and put forward new proposals, which Fullerton, the new owner, ignored. Over 100 tenants began to tear down fences and hedges in early 1628. These riots were seen as part of a systematic reaction to the deforestation of Crown lands in Wiltshire and the Forest of Dean. Troops were called but failed to quell the rioting until the winter of 1628–1629. Further disturbances are recorded in the late 1630s, 1642 and 1651.

Stour Provost was held by the Provost and Fellows of King's College Cambridge. In 1619–1620 it was proposed to enclose part of the extensive waste and commons to 'yield much greater profit to all the tenants and also the Provost, Fellows and Scholars at King's College'.[57] These proposals were supported by the demesne tenant, Christopher Lodge, but not by six copyholders. Their objections were ignored so they refused to pay their percentage for the enclosures. The

dispute went to Chancery in 1624 which revealed the enormous pressure and intimidation that was put upon the six to sign the agreement.

In Stalbridge the newly arrived Earl of Castlehaven wanted to build his new manor house in the common pasture and waste. He obtained the agreement of the copyholders of the manor, some being offered new land, others financial compensation. Unfortunately Castlehaven either ignored or was unaware of the rights of common of the tenants of Stalbridge Weston and the farmer at Antioch. They objected and the case went to Chancery. However, the tenants lost and the mansion was built and a large area enclosed.

There were two main enclosures by agreement on the Kingston Lacy manor, both carried out by the Bankes family: Holt Chase in 1637 and part of the south common field in 1672.[58] On 24 August 1637 an agreement was made between Sir John Bankes, the new owner of the estate, and the freeholders, tenants and commoners of Holt Chase.[59] They all agreed that Bankes could enclose the three ancient coppices, Burnt Oak Coppice, Queen's Coppice and Aldermoor coppice, as well as the 'land within the Rayles', Rookehill and the wastes around it; this totalled about 200 acres. In return Bankes agreed to give the tenants 250 acres next adjacent to Holt Heath and the waste ground to the west of the Rayles. The deer would also be removed within two years of the agreement and not put into the 250 acres.

It is clear from later documents that consent was sought from Sir Anthony Ashley Cooper, the Earl of Shaftesbury, landowner of the neighbouring manor of Hinton Martell, to the west of the newly enclosed area. Despite his reassurances, in 1645 Cooper 'caused the quick hedges, ditches and fences about the said enclosed and divided lande to be beaten down by assembling in a Ryotous manner between 20 & 30 men...and caused catle of all sorts to be put into the wheate, barly & pease there then growinge and utterly spoyled and consumed 22 acres of the said graines which was not less worth than £400 to the utter undoing of Many men theire wives and children'.[60] The rioters also tore down all gates and bars.

In some respects there are parallels between this dispute and that in Gillingham. Both areas had been part of Royal forest. However, the rioting in Wimborne was not part of the larger unrest against deforestation of Royal forests. This seemed to have been a more localised action taking place by neighbouring manorial tenants and their landlord. The Hinton Martel tenants claimed that they had a right of common in the said forest, including within the enclosed area, and that they had paid an annual 6s rent to do so. The 1606 Kingston Lacy survey does include an entry stating that the tenants of Hinton Martel could use the common on Holt Chase for their cattle at an annual cost of 6s.[61]

Sir John Bankes died in December 1644 and the estate passed to his eldest son John, who relied heavily on his father's steward John Hunt and attorney Walter Barnes. The two began to prepare a court action, collecting witness depositions and working out financial losses. Witnesses claimed that the Hinton men had no pasture rights beyond Woodfalls common, an area west of the enclosed land, though they knew of times when they drove their cattle into the chase, contrary to custom. There are three surviving letters sent by Hunt to Bankes between July and January 1648/9 outlining developments.[62] The letters become increasingly desperate at Bankes' indecision to proceed, in the third letter Hunt implores 'if you yelde to it every freeholders and others will looke for the like and you shall have no end of Brablinge'. The cause of Bankes' uncertainty is likely to have been the rising power of Sir Anthony Ashley Cooper in the Parliamentary camp, the Bankes family being Royalists. Hunt tried to reassure the young Bankes, 'I woulde not feare this business with Sir A ... you muste have patiens & putt on currage if not they will tyre you'. He signed the letter 'Your aged & decayinge but trew friend'.

By September the Chancery Commissioners were examining witnesses; there had been a counter-claim by Cooper at the end of 1648 when 'Mr Ettrick & 4 or 5 of your tenants were served to appeare there [Sessions] it much troubled Mr Ettrick'.[63] In May 1650 Cooper was ordered to pay reasonable costs to Bankes but it appears that nothing happened. On 19 June 1657 the tenants petitioned the Lord Protector, stating that though there were counter-claims they never went to actual trial. The petitioners argued that because 'many of them being utterly impoverished and undone' they could not afford to take legal action themselves. It was decided that Major Dewey would mediate in the issue. John Bankes had died the previous year and the estate had passed to his brother Ralph. In a letter to Dewey, Bankes appears rather agitated about a summons to attend a meeting to discuss the issue at Blandford. He informed Dewey that he could not attend 'if I could attend your meeting [it] would be of very little effect'.

He went on to explain that he and Cooper had come to an agreement. He also argued that he had no legal requirement to compensate his tenants since neither he nor his father had caused any disturbance. He concluded by stating that because the tenants were unlikely to be able to take Cooper to court he had re-leased the properties to them or helped them 'in some other way which (being a worke only of Charity) I doe not desire to have prescribed to me, but to be left to my selfe'. Bankes went on to make a series of agreements with the tenants, giving them a sum as compensation as well as allowing them to continue farming the land, with the proviso that if the case went to law and Bankes lost then the compensation money had to be returned. This then appears to have resolved the issue, though many years later Cooper recorded for posterity 'thus was my estate torn and rent from me before my face by the injustice and oppression of that Court, near relations, and neigh-

bours'.[64] The evidence suggests this to have been somewhat of an exaggeration.

These papers give an insight into the motives for such an enclosure. By enclosing the land it could be 'kept in severall [enclosures] for his profitt', a similar motive to the Stour Provost enclosure. In the 1636 Kingston Lacy survey the new leases for the enclosed land have been listed; seven of the 17 tenants signed the 1657 petition.[65] Bankes received an annual rental of £19 5s 2d as well as at least £9 for entry fines. This entry fine figure is small because only four of the tenures have the figure given.[66] The final total could have been as much as £35. It is unclear how much rent he received for the land before it was enclosed. He was also able to clear copses of their valuable timber and sell it.

Another aspect worth examining is the type of land being enclosed and comparing it with that offered by Bankes. The newly enclosed land was of relatively good quality. The depositions list the crops being grown at the time of the riot: wheat, barley and peas. The land offered for grazing was of poor quality: part of the heathland to the east of the new enclosure and an area to the west of the Rayles. This area was part of Aldermoor copse, the other part being enclosed. The area outside the enclosure was marshy and of poor quality. By this action Bankes was gaining 200 acres of relatively good-quality land that he could enclose and thereby increase his annual revenue by over £19, as well as entry fines of approximately £35. For this he exchanged 250 acres of poor-quality land.

There is also a rather sinister twist to the agreement process as well, revealed by the tenants' petition. Like the agreement in Stour Provost, there appears to have been a level of intimidation forced upon the tenants that would not have been detected if it had not been for the subsequent petition. The petitioners stated that the newly enclosed land was sold and leased out by the said Sir John Bankes and his stewards Mr Hunt and Mr Ettricke to the petitioners 'who bestowed (many of them) ther whole estates theron & they being thretned by the said stewards that ther Cottages (then being built by many of your poore petitioners on the said forest) should be pulled downe or taken away from them because they were not tenants accordinge to the Statute. So we your petitioners (& others by ther example) were drawne to purchase estates in the said forest or enclosed ground'.[67] This element of threat and pressure on tenants reveals an important component that many other enclosures by agreement may have had, concealed from the historian, because no subsequent papers have survived or were made.

Engrossing, Assarting and Encroachment on the Estate

It would seem that during the period a significant amount of land, including Holt Chase, was being enclosed. Indeed many of the tenements had attached closes. As well as enclosure by agreement, historians and contemporaries have identified other forms of enclosure, engrossing and assarting.[68] Historians such as Martin believe that engrossing formed an important part of the 'adoption of capitalist forms of management' that were being introduced in the 17th century.[69] Engrossing was the process where land was added to a larger farm to increase its efficiency and profit.[70] These changes were usually piecemeal, the land owner waiting until copyhold properties came in hand, because of the protection that the manorial court gave the tenants.

There was a steady growth of engrossing, particularly in Cowgrove tithing, to the west of Holt Forest, by the Bankes family during the later part of the 17th century and the beginning of the 18th century. The tithe rental figures in Cowgrove reveal a steady growth of tenures held in hand, with land being engrossed to the five main demesne farms in that tithing: Kingston Hall Farm, Rabbs Farm, Trender's Farm, Badbury Warren and Lodge and Mackrell's Farm in Barford. This growth can be demonstrated by comparing the rentals in 1672 with one in 1725. By 1725 the Bankes policy was to increase the acreage of their farms by engrossing smaller leased and copyhold properties when they became available.

Assarting, the carving out, development and utilising of waste land, was nothing new in 17th-century Wimborne. Assarting had already taken place on the heathland within Holt Forest at Colehill and Holt Heath. During the 1616 legal dispute at Colehill, evidence presented at court revealed that the Lords of the manor and their stewards and officers 'have within these 50 yeres asserted & enclosed divers parcells of land owt of the said residewe of Colhill. And there uppon are built ix cotages and all have payd rents for the same'.[71]

As well as this assarting other parts of Colehill were enclosed: 'That Habgood's tenemt cont 12: acres of land was by the Deane of Wimborne taken out of the said wast, And enclosed longe time before the Dissolution of the said Deanary & a rent payd for the same ever sence to the deane'.[72] The evidence goes on to record Jubber's cottage and 4 acre plot was anciently assarted by the dean, and the cottage and 7 acres held by the widow Brewer had been assarted some 40 or 50 years previously. Assarting also took place on Holt Heath including land at Crooked Withies.[73]

During the 17th century the gradual development of the heathland within the manor continued. The four 17th-century manorial surveys for Kingston Lacy record a number of new assarts being officially sanctioned by the steward and lord of the manor. This assarting was mainly taking place in two tithings, Thornhill which contained much of Holt Heath and Stone which included parts of Holt Heath and Colehill. There was some waste land around Pamphill in the Cowgrove tithing which is also recorded. Overall the surveys reveal a slight decline in new assarts between 1606 and 1636,

followed by a period of expansion from 1636 to 1655/6 with 15 new tenures and then a significant falling away by 1672/3 with only six new additions.

The figures from the tithings show different patterns. The Pamphill waste had three new tenements built in 1606 but none in the period leading up to 1636. There were two more in 1655/6 but only one in 1672/3. The exploitation of Holt Heath appeared to have been steady throughout the period, three new plots in the 1606, 1636 and 1672/3 surveys and a rise to five recorded in the 1655/6 survey. The development of Colehill saw a steady rise from 1606, with two, to five in 1636, eight in 1655/6 and then a reduction to two by 1672/3. This seems to imply that the Pamphill and Bankes part of Colehill waste land had been developed as far as possible by the 1670s, whilst Holt Heath was still being developed in the 1670s.

At the same time that the estate was developing the wastes it was also controlling access to it, with a number of illegal encroachments on the waste presented at the manorial court.[74] The manorial court books and presentments cover much of the period, the only notable absence being between 1651 to 1661 and 1670 to 1677. The missing period 1651 to 1661 is disappointing since the height of estate exploitation is recorded in the 1655 survey.

The court material shows that a number of offenders were presented two or three times before carrying out the order. This meant the removal of their illegal cottage or enclosure of waste ground. Between 1619 and 1690 there were 99 separate presentments for encroachment on the parish wastes.

In most cases there were three or less presentments a year. However, in 1636 there were eight, in 1638 there were six, 1670 and 1679 five and in 1686 ten. The most significant presentments took place in 1650 with a staggering 45 individuals presented for encroachment. It is unfortunate that there is a gap in the records for the next ten years since it is impossible to evaluate how successful the estate was in clearing away these squatters. The estate had been sequestered in 1646 and though William Ettricke, the steward, continued to run the estate it was not until 1650 that the Bankes family resumed total control of the manor. It appears that during the period 1646 to 1649 a large number of individuals took advantage of the Civil War unrest and sequestration of the estate, with the manorial court presenting only two cases, in 1648 and 1649.

Once the estate had been released from sequestration, the steward and manorial officials wasted little time removing the offending encroachments on the wastes. Having cleared these squatter tenements and illegal enclosures, the Bankes family and Ettricke began to exploit the same wastes and this is illustrated by the large rise of recorded new tenures granted the tenants in the 1655/6 manorial survey. Significantly, none of those presented in 1650 for illegal encroachments were granted new tenures recorded in the 1655/6 survey. This appears to have happened only once during the whole of the period. In 1631 John Thorne was presented for encroaching on the Lord's waste towards Mannington.[75] He was not presented again in the court so possibly he removed the encroachment. He appears in the 1636 manorial survey, leasing a cottage and garden, two plots and 2½ acres of arable and meadow at Crooked Withies, near to Mannington. The property also includes an acre plot of land newly enclosed out of Holt Heath. So did Thorne remove his enclosure then re-enclose the land once he got permission or did he persuade the estate (in the ownership of the Blount family at the time) that he could keep the encroachment and have it ratified in the 1636 survey?

Though Thorne is an exception to the rule, this does not mean that those encroaching were all from outside the manor. A number of them held tenures within the manor and were attempting to enlarge them without permission of the Lord of the manor. This included Richard Oliver who held Holt Lodge, one of the largest tenements in the Holt area; he was presented for encroachment in 1636 and his widow again in 1650. Other tenants included William Rolles in 1636, William Spencer in 1628 and his widow in 1636, Thomas Painter in 1636 and there are frequent encroachments recorded by the Forrest family. There were others presented who did not hold land within the manor. The 1650 presentments include Arthur Wareham, Mary Shitler, Christopher Harries, Elizabeth Gregory, Joane Herriott and William North. This suggests that in a number of cases people were coming from outside the manor in search of waste land in which to settle and farm. The steward and manorial officers took steps to have these people removed and to reallocate the land to other tenants.

Just south-west of the Holt Forest boundary lay the small manor of Wilksworth, owned by the Hanham family. The manorial court book records four illegal encroachments on the small wastes at Furzehill and Dogdean in 1647 and 1656.[76] It reinforces the findings on Holt Heath and Colehill that the Civil War and Commonwealth period was an unsettling time for estate management. A number of people attempted to establish squatter cottages with a small parcel of land to eke out an existence in the marginal areas of the parish. Once control was re-established, the stewards of the estates wasted little time in evicting these people and removing the cottages.

In every instance the manorial court's action and attitude towards this encroachment is clear; the cottage (if one has been built) and enclosure were to be pulled down and land thrown open. For those who did not comply, fines, usually of 20s, were threatened. If the offender continued to disregard the court's decision then the fines would increase. Thomas Freeborne was presented for encroaching on Holt Heath near Dogdean in 1628.[77] He ignored the initial Court decision and by 1630 he was being threatened with a penalty of £3.[78] In

1638 John Serrell alias Woods was presented for encroaching on the wastes.[79] He was still being presented in 1639 and threatened with a fine of £6.[80] It is unclear whether these offenders actually paid these fines, though they were not presented after these threats so it would appear that they complied and moved off the waste land.

The Development of the Rural Brick Industry on Horton Heath and Colehill

During the 17th century, evidence shows that both the Bankes and Hanham estates were attempting to develop these marginal heath areas. There had always been a certain amount of grazing on this land as well as tenurial rights for some of the copyholders to cut furze for fuel. Indeed these had always been the main activities on Holt Heath. It has already been demonstrated from the 1606 Kingston Lacy survey that the tenants of Hinton Martel (and no doubt tenants from the Holt area) had the right to graze their cattle on the Holt Heath.[81] In 1647 George Chicke was presented to the Wilksworth manor court for illegally keeping his cattle on the waste.[82] Some of the tenants in the Bankes estate had rights to cut furze. In the 1655/6 survey it shows that John Butler of the Rayles in Holt Chase had liberty to take heath furze from the waste at Holt. These rights were not just granted to certain copyholders in the Stone and Thornhill tithings (which covered Holt Heath). For instance Robert Barrett held a property in Cowgrove tithing, some miles away from the heath, yet he had the right to cut 4000 turfs a year from Holt Heath and Roger Shaw had the right to cut 3000 turfs a year, to be burnt in his tenement in Cowgrove.[83] The manorial courts attempted to enforce these rights and there are many examples of individuals being presented for illegally cutting turfs.

While cattle grazing and the cutting of fuel were not new activities on the heath, the growth of the rural brick-making industry at Colelhill and Holt Heath was a significant development. At the beginning of the century the majority of housing in Wimborne town and the rural hinterland was of timber-framed wattle-and-daub construction. However, the local brick-making industry became increasingly important as hand-made bricks slowly replaced wattle-and-daub constructions, particularly in Wimborne town. The clay areas around Holt Wood and Colehill were the two main brick-producing areas. These bricks were made when clay was burned in ovens, which explains why brickmakers were often referred to as brickburners. The Seevior family were associated with the Holt Wood area from at least the beginning of the century. In 1636 Roger Seevior held a cottage and land, including 6 acres of land in the newly enclosed chase, against the house in Holt Wood.[84] It is unclear whether Roger began to exploit this newly enclosed area but by 1676 Thomas and William Seevior were living and working in the area producing bricks.[85]

The area around Colehill was also being exploited. In 1695 the Bankes family leased to Sansom Mowlem a newly built messuage and brick kiln at Colehill, including pits newly opened for the making of bricks.[86] The Bankes family clearly recognised the importance of developing the brick industry since one of the conditions of the lease was that Mowlem supplied bricks to the Bankes at 12d a 1000 cheaper than the market price. There is evidence to show that the Bankes family were keen to take up this condition by purchasing bricks from Colehill. The estate accounts of 1691–1714 include numerous purchases of bricks from the Mowlems.[87] This was not the first pit and kiln in Colehill, for in 1648 William Clarke, a brickburner from Colehill, died.[88] There were also two brickmakers from Leigh (close to Colehill), John and Samuel Key.[89] The only brickmaker to be identified as living in the town was William Mowlem, who was living in the borough in 1668.[90] There is no evidence to suggest that he was carrying out brick making within the Borough. It is possible that, like his son, he was carrying this out at nearby Colehill. In Wilksworth manor Thomas Frampton was presented for illegally digging and carrying away clay from the Waste in 1647 and it is possible that he was using or supplying a local brickburner.[91]

The records would suggest that this was a small rural industry growing slowly during the period, with only one brickburner operating before 1654. Indeed, the Seeviors were quite possibly producing bricks seasonally to a local market during the first half of the century, tying this in with their farming commitments. Placename evidence would bear out the theory of small-scale production of bricks in this earlier period; for instance land called Brick Pit in Pamphill is recorded in 1606.[92] The majority of houses in the first half of the century were timber-framed, wattle-and-daub constructions which may explain why the making of bricks was confined to seasonal work. However, by the end of the century brick houses were replacing the wattle-and-daub ones and the Colehill and Holt Heath brick makers worked permanently and not seasonally in producing bricks.

Conclusion

The exploitation of the medieval Royal Forest, Park and Chase at Holt during the 17th century serves as an example of similar events that took place in similar places throughout the country. The gentry continued to hunt; the examinations from the 1612 legal dispute between Sir William Uvedale and Mountjoy Blount reveal that Uvedale and his servant, Andrew Bushe, hunted in Priors Copse, killing six bucks and six deer. The witnesses included John Lauwaren, a former keeper of the chase, who claimed that in 1608 the servants of Thomas Uvedale killed two deer between Priors Copse and Horton Street. Uvedale was so offended that with his own hand did 'spoyle his owne dogges and his men for feare of his displeasure did runne away'.[93]

While there is evidence that the Uvedales still hunted Priors Copse for at least the first quarter of the 17th century, though no evidence suggests it took place anywhere else in the old Holt Forest area, it became increasingly more difficult to hunt deer, with parks and chases being converted to farming land. Eventually foxes became the most popular quarry, over open farmland. In this way landowners could fully exploit the former medieval landscape for agricultural purposes, while continuing with their hunting pastimes.

Holt Park was cleared of its deer and much timber and converted into an important demesne farm, comprising 305 acres of good-quality land. Attempts were made to enclose the chase and clear much of the timber. In the wider medieval forest the poorer quality clay areas, especially on Holt heath, were enclosed (sometimes illegally) and attempts were made to farm it. Some brick-burning on a seasonal basis and furze-cutting also took place in this area, and further south on the wastes around Colehill full-time brick-making was taking place by the mid to late 17th century, to supply the local market in Wimborne and beyond. The age of the medieval Forest, Park and Chase had long passed, so much so that by the end of the 16th century locals were even unsure of what the extent and physical boundaries of the forest and chase had been, leading to much legal wrangling and confusions for contemporaries and historians alike.

Appendix 1

A note of the Bounds of the Chace or Forest of Holte taken out of a record Remayninge in the Duchye Office

The perambulation of the Chace of Holt begyn at Manyington Okes and soe keeoethe the way comyinge from thence to theaste end of Horton and so thorowe the streete to the highe Crosse and so to the Lypyate and from whence to Lynynge Hill from thence to Quyntyns Corner and from thence to Baken Oke alias burnt oke. From thence to Red crosse and so to Margerye Stringers from thence to Petersham Greene as the highwaye leadethe by Vyekes dore to Walford Bridge and so thorowe the Burrowe and the Towne of Wimborne to the easte two bridges at John Osbornes dore. And from thence up the lane at Colehyll and soe to Holman Stubbes. From thence to Browne hyll and so to Whiteshute. From thence to Uddinges Crosse. And from thence to a Stone Crossse in the heath and soe from thence thoroughe Mannington Lane to Mannington Okes.[94]

Acknowledgements

I would like to thank the National Trust and Kingston Lacy House for kindly giving permission to reproduce the two details from Richard Harding's Map of Holt Forest 1622 which is held on their behalf by the Dorset History Centre (reference D/BKL: uncatalogued Map of Holt Forest by Richard Harding 1622).

I would also like to thank the Dorset History Centre for kindly giving permission to reproduce the image of Holt Lodge Farm taken from the sale catalogue of the Bankes Estate 1919 and located in the Henry Richards of Wimborne Collection (reference D/HRW: uncatalogued).

BIBLIOGRAPHY

Primary unpublished

Dorset History Centre
D.1504/1.
D/BKL: CF 1/81, 83–9, 91.
D/BKL: CG 1/42.
D/BKL: CG 2/1–3, 18.
D/BKL: CG 3/1, 7, 15.
D/BKL: 8B/106.
D/BKL: 8B/120.
D/BKL: 8C/13.
D/BKL: 8C/55.
D/BKL: Gilt book.
D/BKL: Map of Holt Forest by Richard Harding *c.* 1622.
D/BKL: Map of Holt Chase undated mid-17th century.
D/BKL: Map of Badbury Warren Enclosure 1742
D/BKL: William Woodward's Survey of the Kingston Lacy 1774/5.
D/BKL: 1606 Kingston Lacy Survey.
D/BKL: 1636 Kingston Lacy Survey.
D/BKL: 1655/6 Kingston Lacy Survey.
D/FRY: 1186.
D/HNM: Wilksworth manor court book 1625–1670.
D/HRW: Sale Catalogue of the Bankes Estate 1919.
PE/WM: CP 2/8 (158).
PE/WM: GN 3/115.
PE/WM: OV 11/1/9.
WM/W/C27.
WM/W/K7.

Queen's College, Oxford archive
QCA 3N/24 Court book 1627–1663

The National Archive
DL 29/1/1
DL 29.682/11059.
DL 44/22/41.
DL 44.534.
DL 44.573.

Secondary sources

Beresford, M., 1954 *The Lost Villages of England.* Stroud.

Beresford, M., 1961'Habitation versus improvement: the debate on enclosure by agreement', in F. Fisher (ed.), *Essays in the Economic and Social History of Tudor and Stuart England.* Cambridge.

Bettey, J., 1975 'The revolts over the enclosure of the Royal Forest at Gillingham 1626–1630', *Proceedings of the Dorset Natural History and Archaeological Society* **97**, 21–24.

Bettey, J.,1980 'Enclosure disputes at Stour Provost and Stalbridge during the early seventeenth century' *Somerset and Devon Notes and Queries* XXXI, 355–59.

Cantor, L. and Wilson, J.,1969'The Mediaeval deer-parks of Dorset, IX', *Proceedings of the Dorset Natural History and Archaeological Society* **91,** 204.

Casada, J., 1972 'Dorset social history, 1540–1640', *Proceedings of the Dorset Natural History and Archaeological Society* **92**, 225.

Clay, C., 1984 *Economic Expansion and Social Change: England 1500–1700 Volume I People, land and towns*. Cambridge.

Clegg, A., 1960 *A History of Wimborne Minster and District*. Bournemouth.

Ferris, J., 1965 'The gentry of Dorset on the eve of the Civil War', *The Genealogist's Magazine* **15**, 112–13.

Fisher, F. (ed.), 1961 *Essays in the Economic and Social History of Tudor and Stuart England*. Cambridge.

Goodwin, T., 1996 *Dorset in the Civil War*. Dorset.

Hoyle, R.W. (ed.), 1992 *The Estates of the English Crown 1558–1640*. Cambridge University Press.

Hoyle, R.W., 1992 'Disafforestation and drainage: the Crown as entrepreneur?', in Hoyle (ed.), 1992, 353–88.

Hoyle, R.W., 1992 'Aspects of the Crown's Estates *c.* 1558–1640' in Hoyle (ed.), 1992, 1.

Martin, J., 1986 *Feudalism to Capitalism: Peasant and Landlord in English Agrarian Development*. Basingstoke.

Overton, J., 1996 *Agricultural Revolution in England: The Transformation of the Agrarian Economy 1500–1850*. Cambridge.

Papworth, M., 1987 *Lodge Farm Kingston Lacy, Dorset*. National Trust.

Reeve, D.C., 2000 'Wimborne Minster, Dorset: a Study of a Small Town 1620 to 1690', unpublished PhD thesis, University of Exeter, chapter 3.

Underdown, D., 1985 *Revel, Riot and Rebellion: Popular Politics and Culture in England 1603–1660. Oxford*.

Warren, P., 1966 'The story of Holt Church and Holt Forest, Wimborne', *Proceedings of the Dorset Natural History and Archaeological Society* **88**, 97.

NOTES

1 This article has been based partly on D.C. Reeve, 'Wimborne Minster, Dorset: a Study of a Small Town 1620 to 1690', PhD thesis, University of Exeter (2000), chapter 3.

2 L. Cantor and J. Wilson, 'The Mediaeval Deer-Parks of Dorset, IX', *Proceedings of the Dorset Natural History and Archaeological Society* **91** (1969), p.204.

3 TNA DL 42/22 folio 41.

4 TNA DL 29/1/1.

5 Cantor and Wilson, 'Medieval Deer Parks', *Proceedings of the Dorset Natural History and Archaeological Society* **91**, 204.

6 DHC D/BKL: Kingston Lacy survey 1636.

7 DHC D/BKL: Map of Badbury Warren Enclosure 1742.

8 For a full account of Badbury Lodge see M. Papworth, *Lodge Farm Kingston Lacy Estate, Dorset* (National Trust, 1997).

9 DHC D/BKL: John Bankes Memorandum Book for 1756.

10 P. Warren, 'The Story of Holt Church and Holt Forest, Wimborne', *Proceedings of the Dorset Natural History and Archaeological Society*, 88 (1966), p. 197.

11 Particularly Warren, 'Holt Church and Forest' and Cantor and Wilson, 'Mediaeval deer-parks'.

12 Boundaries and analysis are given in A. Clegg, *A History of Wimborne Minster and District* (Bournemouth, 1960), p. 71.

13 Warren, 'Holt Church and Forest', p. 199.

14 QCA 3N/24 Court Book 1627-1663.

15 The boundaries of the 13th-century perambulation are given in Clegg, *History of Wimborne Minster*, p. 71. Part of the 1595 boundary is given in Warren, 'Holt Church and Forest', p. 199. The post 1595 boundaries can be found in DHC D/BKL: 8B/120. These are given in full in appendix 1.

16 In fact 16 out of 20 boundary points given in the post 1595 perambulation are shown on Harding's map.

17 DHC D/BKL: 8B/120. The Arney family held the manors of Chalbury and Uddens at the time.

18 This debate is discussed in Cantor and Wilson, 'Medieval deer-parks', pp. 202–4.

19 DHC D/BKL: Map of Holt Forest by Richard Harding circa 1622.

20 DHC D/BKL: Map of Holt Chase undated mid-17th century.

21 DHC D/BKL: 8B/120.

22 Cantor and Wilson, 'Medieval Deer-Parks', p. 205.

23 DHC D/BKL: Kingston Lacy Survey 1606.

24 TNA DL 44 no. 534.

25 TNA DL 44 no. 573.

26 TNA Duchy of Lancaster series.

27 A number of the reports and surveys have been summarised in Warren, 'Holt Church and Forest', pp. 198–200.

28 R.W. Hoyle, 'Aspects of the Crown's Estates *c.* 1558–1640' in R. W. Hoyle (ed.), *The Estates of the English Crown 1558–1640* (Cambridge University Press, 1992), p. 1.

29 DHC D/BKL: Kingston Lacy Survey 1606.

30 DHC D/BKL: CG 3/7.

31 DHC D/BKL: CG 2/18.

32 TNA DL 29 682/11059.

33 DHC D/BKL: CG 3/1.

34 DHC D/BKL: CG 3/15.

35 TNA DL 44.573.

36 DHC D/BKL: Gilt book.

37 DHC D/BKL: Map of Holt Chase undated mid seventeenth century.

38 A map was drawn by Richard Harding in 1613 which shows the disputed area on Colehill and includes the location of the bowling green, mentioned in the trial. See DHC D.1504/1.

39 DHC D/BKL: Map of Holt Forest by Richard Harding n.d. *c.* 1622.

40 *Ibid*.

41 DHC D/BKL: CF 1/91 folio 21.

42 For example DHC D/BKL: CF 1/91 folios 42, 49, 64, 91 109 and 151.

43 DHC D/BKL: 8B/120: Blount v Arney.

44 The boundary is shown as the same on Woodward's map of the estate in 1774/5 see DHC D/BKL: William Woodward's Survey of the Kingston Lacy 1774/5.

45 M. Beresford, *The Lost Villages of England* (Stroud, 1954), pp. 53–4, 172, 176.

46 M. Beresford, 'Habitation Versus Improvement: the Debate On Enclosure by Agreement', in F. Fisher (ed.), *Essays in the Economic and Social History of Tudor and Stuart England* (Cambridge, 1961).

47 J. Martin, *Feudalism to Capitalism: Peasant and Landlord in English Agrarian Development* (Basingstoke, 1986), pp. 138–40 and chapter 9 for his case study on the 1607 Midland Revolt.

48 *Ibid*. p. 138.

49 C. Clay, *Economic Expansion and Social Change: England 1500–1700 Volume I People, land and towns* (Cambridge, 1984), p. 78.

50 D. Underdown, *Revel, Riot and Rebellion: Popular Politics and Culture in England 1603–1660 (Oxford, 1985)*, pp. 18–19.

51 *Ibid*. p. 114.

52 *Ibid*. pp. 80–81.

53 J. Casada, 'Dorset Social History, 1540–1640', *Proceedings of the Dorset Natural History and Archaeological Society*, 92 (1972), p. 225.

54 *Ibid*. pp. 265–6.

55 See J. Bettey, 'The Revolts over the Enclosure of the Royal Forest at Gillingham 1626–1630', *Proceedings of the Dorset Natural History and Archaeological Society*, 97 (1975), 21–24 and J. Bettey, 'Enclosure Disputes at Stour Provost and Stalbridge during the Early Seventeenth Century' *Somerset and Dorset Notes and Queries*, XXXI (1980), pp. 355–59.

56 R. Hoyle, 'Disafforestation and Drainage: the Crown as Entrepreneur?', in Hoyle (ed), *Estates of the English Crown*, pp. 353–88.

57 Bettey, 'Enclosure at Stour Provost and Stalbridge', p. 356.

58 The 1637 enclosure and subsequent dispute is discussed briefly by J. Ferris, 'The Gentry of Dorset on the Eve of the Civil War' *The Genealogist's Magazine* 15 (1965), pp. 112–13.

59 For the papers referring to this enclosure and subsequent court action see DHC D/BKL: 8B/120.

60 DHC D/BKL: 8B/120 Holt Chase dispute.

61 DHC D/BKL: 1606 Kingston Lacy Survey.

62 DHC D/BKL: 8B/120 Holt Chase dispute.

63 DHC D/BKL: 8B/120 Holt Chase dispute. Mr William Ettricke was deputy steward of the estate at the time.

64 T. Goodwin, *Dorset in the Civil War* (Dorset, 1996), p. 18.

65 DHC D/BKL: 1636 Kingston Lacy Survey: 'Holt Increases'.

66 Ibid. Alice and John Redman's fine was 94s; John Redman 44s, Richard Miller 16s and Richard Hammond 26s.

67 DHC D/BKL: 8B/120 Holt Chase dispute: 19 June 1657 petition to the Lord Protector.

68 For instance M. Overton, *Agricultural Revolution in England: The Transformation of the Agrarian Economy 1500-1850* (Cambridge, 1996) pp. 147–48.

69 Martin, *Feudalism to Capitalism*, pp. 130–32.

70 See Clay, *Economic Expansion*, vol. 1, pp. 81–85.

71 DHC D/BKL: 8C/13.

72 DHC D/BKL: 8C/13.

73 Warren, 'Story of Holt Church and Forest', p. 201.

74 See DHC D/BKL: CF 1/81, 83-9; D/BKL: CG 1/42, 2/1–3.

75 DHC D/BKL: CF 1/1/86.

76 DHC D/HNM: Wilksworth manor court book 1625–1670.

77 DHC D/BKL: CF 1/1/84.

78 DHC D/BKL: CF 1/1/85.

79 DHC D/BKL: CF 1/1/91 folio 86.

80 DHC D/BKL: CF 1/1/91.

81 DHC D/BKL: 1606 Kingston Lacy Survey.

82 DHC D/HNM: Wilksworth manor court book 1625–1670.

83 DHC D/BKL: 1655/6 Kingston Lacy Survey.

84 DHC D/BKL: 1636 Kingston Lacy Survey.

85 DHC PE/WM: OV 11/1/9.

86 DHC D/BKL: 8B/106.

87 DHC D/BKL: 8C/55 for example in 1710.

88 DHC WM/W/C27.

89 DHC D/FRY: 1186, PE/WM: GN 3/115, WM/W/K7.

90 DHC PE/WM: CP 2/8 (158).

91 DHC D/HNM: Wilksworth manor court book 1625–1670.

92 DHC D/BKL: 1606 Kingston Lacy Survey: Cowgrove at-will tenant Edward Dyck.

93 DHC D/BKL: 8B/120: Legal dispute between Sir William Uvedale and Mountjoy Blount.

94 DHC D/BKL: 8B/120.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 17–24

'Tempore pubertatis nostrae' The West Saxon Aldhelm of Malmesbury

G.T. DEMPSEY

Aldhelm was a native of the Sherborne area, in the far south-west of the West Saxon kingdom, in the frontier area with the British kingdom of *Dumnonia* (Devon and Cornwall). We are told this by Aldhelm's 12th-century biographer, William of Malmesbury,[1] who refers to Sherborne as Aldhelm's *genitalis terrae*. Aldhelm would have been born here in the later 630s; and, here too, he would establish his see, as Sherborne's first bishop, when the West Saxon diocese was divided in 705 (the *Anglo-Saxon Chronicle*, in its obit for Aldhelm *s.a.* 709, describes the location of Aldhelm's bishopric as *be-westan wuda* – that is, west of Selwood).[2] For most of his adult life, though, Aldhelm's home-base was at Malmesbury, on the Avon river not far from the Bristol Channel, in the frontier area between Wessex and Mercia. There, he was a student under the Irish schoolmaster Maildubh[3] and then founder-abbot of the monastery of the Holy Saviour and Sts Peter and Paul, continuing on as abbot, on the petition of his monks, after becoming bishop. It was to Malmesbury that his body was returned for burial when he died in 709 at Doulting in Somerset.[4]

By the end of his long life, Aldhelm was to leave behind him a body of scholarly and artistic work demonstrating a thorough command of Latin, prose and prosody alike, and a knowledge of both classical and Patristic literature greater in breadth than any other Anglo-Saxon or Irish scholar of his era.[5] But we will miss the true significance of the erudition and sophistication of Aldhelm's learning – both for his contemporaries and for us – if we neglect Aldhelm's Anglo-Saxon background, the historical contextualisation of him as a nascent Christian ecclesiastic and Latin scholar, working in a hitherto pagan and barbaric society with its own long-traditional cultural patterns and beliefs. Unfortunately, the singularly barbaric aspects of Aldhelm's scholarly environment have largely vanished from the historical record. A close reading of writings by or associated with Aldhelm reveals little and that little is more indicative than informative.[6] Similarly, a survey of the formative development of the West Saxon kingdom from the century before Aldhelm's birth establishes the wider historical context of his life, but few definite linkages can be established between Aldhelm's known activities and this West Saxon history. Indeed, we are dependent for much of what gives us a deepening of Aldhelm's life to what William of Malmesbury reports in his biography. He tells us, for instance, that King Alfred considered Aldhelm to have been a master composer of Old English songs, but these songs no longer exist (more on this below). Still, modern scholars, for many many decades now, have sought to glean from Aldhelm's surviving output, combined with his known relations and his society's established attitudes, testimony to his Anglo-Saxonness. Many of their observations are but *obiter dicta*. Let us consider those which, while interpretive, are factually based.

West Saxon Royal Kinship

William of Malmesbury also tells us that Aldhelm was of West Saxon royal kinship. His authority for this was Alfred the Great's *Handboc*, apparently the great king's commonplace book which no longer survives.[7] Apparently, also, even in Alfred's time, Aldhelm's exact descent was no longer clearly remembered. The *Handboc*'s name for Aldhelm's father was 'Kenten', identified merely as closely related to (perhaps a first cousin of) Ine (king in Wessex, 688–726).[8] The natural conjecture is that 'Kenten' is a 'corrupt and misunderstood form' of Centwine,[9] a predecessor (676–685) of Ine as king and himself son of a previous king, Cynegils (611–642), the first West Saxon ruler to receive baptism (in 635).[10] Aldhelm reveals virtually nothing in his voluminous writings concerning his kinship. There is a possible reference to a sister in the dedication of his *De virginitate*,[11] and in his dedicatory poem (*titulus*) for the church built by Bugge he identifies Bugge as the daughter of Centwine[12] (and, thus, possibly his sister, or half-sister if Aldhelm was Centwine's son by an earlier marriage).[13] It may be that questions of descent were simply not appropriate matter for Aldhelm's Christian didacticism. The roll-call of an Anglo-Saxon genealogy would have rung an alien note. Certainly, all of the virgin-martyr tales which Aldhelm recounts in his *De virginitate* were drawn from Latin language sources and his not infrequent citations of pagan gods were classical Roman, evoking Virgil and Ovid even if through the modifying Christian medium of Paulinus of Nola.[14] What, though, might Aldhelm have said of his royal kin in his Old English songs? The *Handboc* tells us (again, according to William of Malmesbury) that King Alfred considered none of the Old English poets to be the equal of Aldhelm in vernacular poetry. Aldhelm is depicted as a minstrel at a bridge, instructing his semi-barbarous congregation in the truths of Scripture through his songs.[15] None, sadly, survives – or, at least, none of the poems in the surviving Anglo-Saxon poetic corpus has been identified as Aldhelm's, though Michael Lapidge has suggested that an investigation of Aldhelm's poetic methods would 'repay close attention' by Old English scholars.[16] Certainly, numerous scholars have noted the similarities between Aldhelm's Latin poetry and the stylistic techniques of Old English verse. Pitman remarked that 'many things in Aldhelm's poetic style – verse-accent strongly marked by coincidence with word-

accent, internal rhyme, alliteration, continual search for synonyms, sometimes resulting almost in kennings – constantly remind one of the similar traits of Old English verse;'[17] and Andy Orchard concluded that 'since the same sort of formulaic patterning of phraseology occurs in Aldhelm as in *Beowulf* it seems reasonable to describe both as products of a traditional (and oral-derived) system of versification'.[18]

The Exeter Book and Beowulf

One potentially fruitful area of such an investigation might well be the elegiac poems and the riddles in the Exeter Book. It was Aldhelm's particular insight to illustrate the principles of proper quantitative Latin verse in a series of *enigmata* – commonly translated as 'riddles' – fittingly choosing this most popular of literary genres among his fellow countrymen. The Exeter Book manuscript was presented by Bishop Leofric of Exeter to his cathedral after his see had been translated from Crediton in the mid-11th century.[19] Like Sherborne, Crediton had been border country until the native Cornish kings' dynasty was finally ended by Æthelstan in the 10th century. A West Saxon provenance has been proposed for the elegiac poems – the 'Wanderer', the 'Seafarer', and the 'Ruin' – and for the riddles contained in this manuscript;[20] and two of the riddles have been identified as Old English renderings of two of Aldhelm's *enigmata*: 'Riddle 35' of the Exeter Book corresponds to Aldhelm's 'Lorica' (*Aldhelmi Opera*, pp. 111–12), and 'Riddle 40' to 'Creatura' (*Aldhelmi Opera*, pp. 145–49).[21] According to Tupper, the Old English versions each contain subtle differences which could indicate that they were following earlier versions of Aldhelm's *enigmata*.[22] The obvious question is whether those 'earlier versions' were Aldhelm's own first versions of poems he subsequently turned into Latin.[23] Did Aldhelm, like Cædmon, sing in Old English of the glories of a Christian god's creation? Aldhelm's 'Creatura' – the lengthy concluding poem in Aldhelm's series of one hundred *enigmata* – is, in particular, a celebration of the wondrous paradoxes of God's multifarious creation: a living wisdom which far surpasses the learning of wise men, as Aldhelm bluntly states in l.70: '*Sic mea prudentes superat sapientia sofos*'. Vivien Law, in an analysis of the writings of Virgilius Maro Grammaticus, explicitly identifies the *sofi* in question as 'Irish philosophers' and reads the challenges in 'Creatura', particularly its concluding lines (ll.80–83), as disparaging their learning.[24] This is a logical reading, given the literary warfare which Aldhelm conducted against the Irish, peppering his writings with abusively anti-Irish allusions.[25] However, this poem's theme – in its essence a recapitulation of the underlying theme in all of the previous ninety-nine *enigmata* – reflects 'the awestruck worship of the Creator', the celebration of 'the vastness and intricacy of the universe as an adumbration of the glory of God', which, famously, suffuses contemporary Irish writings.[26] Indeed, Aldhelm's celebratory tone, here, would seem to reflect both his early Irish educational nurturing and that sense of the natural goodness of man (the *bonum naturale*) that pervades the Germanic world of *Beowulf*.[27] Early Anglo-Saxon Christianity was largely an aristocratic one.[28] Where kings and lords went, the warriors followed and brought their followers with them. A half-century ago, Dorothy Whitelock, in an intriguing aside, claimed that she would not be suggesting that Aldhelm was the author of *Beowulf*, though such a suggestion could not be disproved on linguistic grounds.[29] Nor, indeed, could it be disproved from internal arguments drawn from this saga's portrait of northern life in the age of migration.

There is no question of the *Beowulf* poet's portrait being a work of history, despite the accuracy of its references to actual Nordic kings and their heirs. Rather, the poet draws upon folk-memories and myths and legends and upon considerations of heroic behaviour that would be intuitively familiar to his audience, both from other sagas, which constituted the stock entertainment of aristocratic households, and because such considerations still governed relationships in Anglo-Saxon kingdoms.[30] For the poet and his Christian audience, Beowulf is the ideal Germanic warrior. Though he is a pagan, he commits no act which could be seen as morally reprehensible. Certainly, he boasts before battle – showing no modesty in his recounting of his exploits to Hrothgar – but it is not drunken boasting (nor is there brawling in the meadhall, as Tacitus might have us expect).[31] There has also long been a critical consensus that *Beowulf* is the work of a Christian poet.[32] While there is no explicitly Christian reference in the poem, there are biblical reminiscences both explicit (strikingly, Grendel's descent from Cain) and suggestive.[33] Thus, Beowulf is depicted as a heathen living morally under the Old Law, for he did not yet know Christ. Most tellingly, the motivating theme of the work, its didactic purpose, serves to promote a Christian conclusion. While Beowulf adheres, unswervingly, to the pagan heroic code of revenge of one's lord or of one's friends and of the winning thereby of fame after death (the warrior's noblest surety),[34] his life ends not just in tragedy but in failure. He may die rejoicing in his victory over the dragon, but the Christian audience would recognise the futility of his death and the explicit uselessness of burying the treasure with the dead hero. As Whitelock observed, 'his people do not benefit from his action...: "They let the earth hold the treasure of warriors, the gold in the ground, where it still lies, as useless to men as it was before"'.[35] Christian kings are expected to protect their people, not die in the lust of the pagan code for fame on earth. In this sense, the dragon embodies the *ofermod*, the pagan pride and lust-fame, that both drives and torments Beowulf ('manna...lofgeornost').[36] But in accepting battle with the dragon and in killing it, Beowulf does not seize victory; rather, he falls victim to this tragic flaw of his heroic code. As rendered by the poet, the message is clear: the flaw was not in Beowulf, the ideal pagan warrior, but in his code of behaviour. In the Christian conclusion, Beowulf is not a king who dies,

tragically, for his people but a king who dies, futilely, in spite of his people. This is the doom-laden fate of not just Beowulf and of Hrothgar and his family and of Hygelac and his son Heardred. It is the fate of every faithful man in a society so integrally governed by vengeance.[37] The poem bears the nearly unbearable weight of an elegy to a pagan and heroic past of mighty warriors, generous kings, unremitting monsters, fierce seas, and this unrelenting code which had to perish, just as the last king of the dragon's hoard had to perish: 'Gæð a wyrd swa hio scel'.[38] But, says the *Beowulf* poet, in the new Christian dispensation, men know that it is not impersonal fate, but God's will which is determinative of man's ends: 'Soð is gecyþed,/þæt mihtig God manna cynnes/weold wideferhð'.[39] A *speculum principis*, then, for an age of conversion?[40]

The Early West Saxon Kingdom

At the time Aldhelm was born, the West Saxon kingdom could trace its origins back but a century. David Dumville's detailed re-examination of the early West Saxon annals in the *Anglo-Saxon Chronicle* and of related genealogical lists has resulted in a substantial re-dating:[41] Cerdic and Cynric are now seen as arriving in 532, with Cerdic's reign beginning in 538 (Cynric succeeded in 554). In addition to such questions of chronology, there have long been seen to be problems with the *Anglo-Saxon Chronicle*'s seeming account of the West Saxon kingdom originating from a landing by Cerdic and Cynric on the southern Hampshire coast and progressively pushing northward.[42] This story stands in distinct conflictual disarray before what archaeology tells us about the proto-West Saxon presence in England. As Barbara Yorke puts it, 'the area which has the best claim to have been the original homeland of the West Saxons is the upper Thames valley'[43] – in particular, archaeologists have uncovered substantial evidence that this area was a centre of Saxon settlement from the 5th century and that the élite nature of burials here in the 6th century strongly suggests it as the power center of an 'emergent kingdom'.[44] Indeed, this archaeological account congrues with the subsequent entries in the *Anglo-Saxon Chronicle*, which clearly establish the upper Thames valley as the area of operations of Ceawlin, Cynric's successor and listed by Bede (*Historia ecclesiastica* ii, 5) as the second king with overlordship in southern England (a status termed *Brytenwalda* by the *Anglo-Saxon Chronicle*, *s.a.* 829).[45] In Yorke's judgment, the entries for Ceawlin in the *Anglo-Saxon Chronicle* 'contain more convincing circumstantial details than those for Cerdic and Cynric and...could [well] derive from an oral poetic source'.[46]

Still, despite the *Anglo-Saxon Chronicle*'s depiction of him as an energetic and successful warlord, Ceawlin's fate was obscure. In 592, he is said to have been driven out and, in 593, to have perished. But already in 591, Ceol, perhaps Ceawlin's nephew, is said to have begun to reign. A direct descendent of Ceawlin's line would not again be king in Wessex for nearly a century, until Cædwalla in 685, and it was also with Cædwalla's reign that the name 'West Saxon' begins to dominate for the heirs of Cerdic.[47] Until then, they were known as 'Gewisse.' The origins of this name have been much debated.[48] In various versions of the West Saxon genealogy, a certain Giwis is given as either Cerdic's grandfather or great-grandfather, the descent being: 'Giwis-Elesa-Cerdic' or 'Giwis-Esla-Elesa-Cerdic'.[49] 'Giwis' has been taken, in the long-standing consensus view, to be no more than an eponymous invention from 'Gewisse',[50] even though this would, of course, leave the origin of 'Gewisse' itself unexplained. We should, then, take a look at the various historical and ethnic realities surrounding Cerdic's 'succeeding to the kingdom' (which was to become the kingdom of the West Saxons).

The one constant in all the various West Saxon king-lists in the *Anglo-Saxon Chronicle* is the vital necessity of descent from Cerdic as legitimising the holding of kingship in Wessex. This suggests that Cerdic's area of operations moving northwards from the south Hampshire coast was not – or, at least, not wholly – a myth-making invention, for surely his descendents who so valued him as the dynastic paterfamilias would not have so wholly forgotten what he did and where he did it. Nevertheless, as demonstrated by the archaeology and by historical references, this area was otherwise Jutish-dominated territory. There is also the notable consideration that the name 'Cerdic' is not English, but British (as is 'Elesa').[51] This 'tribal' jumble could suggest that, when Cerdic and Cynric arrived on the southern coast in their five ships, they were leading a very mixed band indeed: 'War-bands are tribes in the making'.[52] Perhaps, 'Gewisse' derived from the heterogeneity of the racial make-up of Cerdic's new kingdom (as well as that of his birth). Bede first uses the term – '*qui antiquitus Geuissae uocabuntur*' – when he describes Birinus' arrival as the first missionary in this very pagan part of England.[53] In 635, Birinus baptises Cynegils and is established as bishop in the *civitas* of Dorchester in the upper Thames valley. This occurs within a few years of Aldhelm's birth and a century after the coming of Cerdic. Let us, for argument's sake, project Giwis as an actual historical figure and a significant leader of the original Saxon presence in the upper Thames valley. In the late 5th or early 6th century, in what apparently was yet a British-ruled area (given that the West Saxons did not gain the upper hand until their victories over the British beginning in the 570s), a Saxon leader here would have been a foederated warrior, perhaps all too happy to marry a British chieftain's daughter (and give British names to his son and grandson).[54] It may be, then, that, when Cerdic and Cynric arrived on the south Hampshire coast in their five ships, they were not coming 'fresh from the Continent',[55] but fleeing from some falling-out with the British master of the upper Thames area. In this historical scenario, they, as adventurers, would have derived their 'tribal name' from their ancestral leader.[56] If Aldhelm sang, in his Old English poems, of the origin-myths of his West Saxon people, what would he have sung of Giwis?[57]

In the age of migration and into subsequent centuries, there was much of a muchness throughout the barbarian Germanic cultural area. Thus, Eormenric, the father of King Æthelberht of Kent (the successor to Ceawlin as *Brytenwalda*) 'bore a name famous in Germanic legend'[58] – this was Ermenaric, the Gothic king of heroic saga (as allusively recounted in *Widsith*, the 7th-century Old English proto-epic poem), who would go on, in Germanic literature, to become the legendary antagonist of the great Theodoric the Amal, even though the historical Ermenaric and Theodoric were anything but contemporaries. Indeed, by providential coincidence, Theodoric was, according to Jordanes' *Getica*, born (in *c.* 453), on the day his father received news of the victory – the defeat of Attila's sons – which liberated the Goths from the subservience to the Huns which they had fallen under upon the death by suicide of Ermenaric in *c.* 375, a suicide which may have been the ritual self-sacrifice of a sacral tribal king on behalf of his people.[59] According to Cassiodorus, in the 6th-century Ostrogothic kingdom of Theodoric, the sagas of the origin-myths of the Goths from some seventeen generations previous were still recounted – the combining of the power of fate with the deeds of kings 'leads to the creation of the heroic saga'.[60]

Kings and the Church

In Aldhelm's time, it would be anachronistic to speak of government in any sense of its legitimacy reflecting the uncoerced consent, across the board, of the governed. Kingship was the personal exercise of power. In his only direct comments upon kings, in his dedicatory *titulus* for Bugge's church, Aldhelm says of King Centwine that he won famous victories and '*imperium Saxonum rite regebat*'; and he termed Cædwalla the 'potens regni possessor et heres'.[61] Power legitimised by descent, just as being *Brytenwalda* meant being recognised by fellow kings as holding the upper hand through greater power or through the greater ability to use power effectively.[62] It was a violent time. Kings were in the business of making war. Doing so successfully kept them in business by keeping them in possession of power, for it was the spoils of war which paid for the warriors.[63] Otherwise, they were in danger of assassination, of forced exile, of being burnt alive – the consequences of lack of success or of being perceived as a threat to a reigning king. Conversion to Christianity did not affect these societal realities. Famously, conversion signified accepting the lordship of a more powerful god who could deliver greater victories. For the Germanic kings, the resonances of Christianity were very different from modern Christian sensitivities. For them, this new religious belief-system was a source – perhaps but an additional or supplemental source[64] – of personal power in a violent world where all societal relationships were subject to such considerations.[65] As Michael Wallace-Hadrill observed, the large endowments bestowed upon the church by Anglo-Saxon kings were 'a measure of the significance they attached to the support and prayers of the new holy men'.[66] These holy men were the avenue to literally awesome power. Oswiu's smile at Whitby[67] may well have been his knowing recognition that preserving his access to this power depended on his acknowledgment of the holy men entrusted with true, legitimate access to the Christian god. Not surprisingly, the West Saxon Cynegils' accession to this power at his baptism was overseen by the current *Brytenwalda*, Oswald of Northumbria. Christianity was not perceived by these kings to be a diametrically opposed system of belief to their pagan past but, rather, as a re-confirmation, if also re-direction, of the need for continuing to lead a successful warband.

Was Aldhelm always a cleric – that is, intended for the religious life? In his own writings and in those associated with him, there are some allusions suggestive of his knowing well the non-clerical life of a young West Saxon nobleman. In 675, Aldhelm became abbot of Malmesbury. The charter of Bishop Hlothhere, granting the land at Malmesbury to Aldhelm to establish a monastery, describes it as the place where Aldhelm was educated 'from his early childhood' ('*a primo aevo infantiae*') and 'nourished in the bosom of the Holy Mother Church' ('*in gremio Sanctae Matris Ecclesiae nutritus*').[68] Against what seems the plain-sense conclusions that Aldhelm resided at Malmesbury from his youth and that he was always intended for the Church, we should recall the proem of Aldhelm's subsequent letter to Abbot Hadrian whom he greets as the teacher of his '*rudis infantiae*' – a phrase long considered to be best taken as a metaphorical reference to Aldhelm's relative lack of scholarly maturity, rather than as a literal reference to his age (given that, by the time of Hadrian's arrival in England in 670, Aldhelm would have entered his 30s).[69] Letters also survive both to Aldhelm from one of his students and from Aldhelm to various of his students. In a letter to a certain Æthilwald, Aldhelm admonishes him to pay attention to his studies and not to dissipate himself in drinking parties and in banqueting and in riding about aimlessly.[70] Æthilwald, in his letter to Aldhelm, refers to a fellow student named Wihtfrid.[71] This is apparently the same Wihtfrid to whom Aldhelm also wrote an admonitory letter. To Wihtfrid, on the verge of setting out for studies in Ireland, Aldhelm warns against patronising brothels.[72] These seem strange warnings, indeed, to be directed to clerics. Headstrong princelings would seem likelier to be in need of such strictures,[73] Anglo-Saxon *aeþelings* or high-born *thegns* perhaps, like Guthlac. Or like Wilfrid who obtained for himself arms and horses and suitable clothes in order to present himself at the royal court.[74]

If Centwine were Aldhelm's father, then it could be that Aldhelm was born in the Sherborne area in the 630s because his father, son of the reigning king Cynegils, was there to keep watch over that not-entirely secure frontier region. As we have noted, Aldhelm would go on, in his *titulus* for Bugge's church, to speak of Centwine's victories. The *Anglo-Saxon Chronicle*, *s.a.* 682, specifies one of

these victories as against the Britons who were put 'to flight as far as the sea'. Aldhelm himself, as we know from his own rhyming poem, would travel through *Dumnonia* as a cleric. Did he have prior experience of the region? In this poem, he refers to the area as '*diram Domnoniam*'.[75] King Aldfrith of Northumbria (a friend of Aldhelm's) was known to have been acclaimed by the Irish as a poet and scholar, having spent some of his enforced exile in study with the Irish.[76] How, however, did Aldhelm know of Irish bawdy-houses? In his *Epistola ad Acircium*, Aldhelm refers to himself as having stood as sponsor at baptism/confirmation of Aldfrith.[77] This had occurred, Aldhelm says, in '*tempore pubertatis nostrae*'. If we take 20–25 years of age as the very upper range of *pubertas* (as the coming of sexual maturity), together with Aldhelm's statement that his sponsorship of Aldfrith, who came to the throne of Northumbria in 685, had taken place some twenty years previously ('*ante bis bina lustrorum volumina*'), then this sacramental event can be dated, plausibly, to *c.* 660–65.[78] The traditional presumption has been that Aldhelm would have then, in his 20s, been a student of the Irish schoolmaster Maildubh, engaged in mastering the fine points of such works as the *Hisperica Famina*.[79] But we know of other leading clerics of this period who turned late to the religious life after having spent their young manhood (*pubertas*) as warriors.

The most renowned such conversion to religion was that of the hermit Guthlac.[80] But there were other noble youths (*thegns*) who, like Aldhelm, chose to became monks, rather than warriors, two of whom were Benedict Biscop and a successor of his as abbot of Wearmouth, Eosterwine.[81] This should not be seen as an anomalous development. As with the conversion of kings, the demands of military life were not alien to those of the monastic life. Martin of Tours, for one, saw them in nearly identical terms,[82] and Aldhelm was fond of using military metaphors in his own writings. In these writings, in his literary style, Aldhelm consciously adopts the high style of the aristocratic Gaulish bishops like Sidonius Apollinaris. But, unlike them, Aldhelm was not a 'Roman'-born, high ecclesiastic attempting to cope with alien barbarians newly in possession of the reins of power. He was dealing with his own people. Aldhelm's West Saxon world was not a thinly Christianised one but, rather, one Christianised in terms of its own cultural values.[83] Like the cloisonné enamel work of Anglo-Saxon jewellers (as in, for example, the purse-lid from Sutton Hoo, a work as wholly barbaric as it is beautiful), Aldhelm internalised the models of his Christian mentors and recast them to reflect his own society's predilections and preoccupations.

Two Levels of Response to his Germanic Society

At the figurative level, Aldhelm manifests his Germanic inheritance in such artless and intuitive mannerisms as his choice for the pestilential enemy of mankind: the dragon, not the devil. Thus, while for Aldhelm (as for the English church as a whole) Pope Gregory I was his people's especial apostle,[84] Aldhelm's world – in telling contrast to Gregory's[85] – was not peopled with ever-present demons and angels. Indeed, in Aldhelm's writings, the devil is *per se* all but absent.[86] Rather, Aldhelm is fond, particularly in his *De virginitate*, of the dragon as the non-human adversary of his heroic virgins,[87] and Michael Lapidge has suggested 'that Aldhelm's conception of the role of dragons was determined by his familiarity with accounts in Old English of encounters between dragons and heroes'.[88] Aldhelm does exhibit a seemingly purposeful fondness for them: in the introductory chapters of the prose *De virginitate* he personifies the capital vices of gluttony and pride as pestilential dragons; in the verse *De virginitate* he adds, to his account of Daniel, the apocryphal story of Bel and the dragon; he uses the *Gesta Silvestri* story of the dragon of Rome in his account of Pope Sylvester; he chooses, out of the numerous miracles of Hilarion described by Jerome in his *Vita S. Hilarionis*, to give, as one of but two examples, Hilarion's destruction of a dragon (indeed, Aldhelm dwells on this feat in prodigious detail); and he similarly depicts Victoria as putting a rampaging dragon to flight (Victoria then taking over its cave for an oratory).[89] Finally, and tellingly, in one letter to an Englishman returning from years of study in Ireland, Aldhelm identifies the objects of worship of his own pagan ancestors with the same pestilence-breathing serpent.[90]

For his normative objectives, however, Aldhelm was entirely deliberate. This current generation of scholars has reached the conclusion, based on study of Aldhelm's status as a 'curriculum author' well into the 11th century, that 'to the Anglo-Saxon reading public Aldhelm was the pre-eminent author, not Bede'.[91] It may well be that Aldhelm was more popular, more widely read and imitated, because, unlike Bede who wrote for other monks,[92] Aldhelm spoke directly to the needs and concerns of his aristocratic and nascent-Christian society still imbued with the long-traditional beliefs and patterns of behaviour of their hitherto pagan and barbarian culture. Here, he recast his Christian models into a new paradigm in which aristocratic celibate nuns and monks would have the same standing in Anglo-Saxon society as thegns serving their lord, for their life too was heroic. Like the *Beowulf* poet, Aldhelm had the didactic purpose of informing his aristocratic audience of how to live a Christian life in terms of values embedded in the past of their society. But where the Old English poet drew on the great figures and heroic incidents of Germanic legend, Aldhelm drew on the legendary romances of early Christianity, the *passiones* of the virgin-martyrs, which recounted their heroic resistance to threatened loss of their virginity. This too, Aldhelm demonstrates, is a physically arduous and heroic struggle in service of a lord – a lord whose reward, rather than golden torques and swords here on earth, is the martyr's crown in heaven.[93] His monks and nuns recognised the necessity of living with the realities of violent

personalised power. The learnt language in which Aldhelm sought to provide the new paradigm of heroic behavior for his audience of consecrated religious, by crafting his heroic model of the celibate Christian life, was Latin. But his discourse was Germanic. As Andy Orchard has concluded, Aldhelm's verse was 'a direct product of an oral tradition'.[94] We should, I imagine, expect no less of a poet who, as a descendent of Cerdic, was also in direct descent from Woden.[95]

NOTES

1 Book V of William's *Gesta Pontificum Anglorum* ed. and trans. M. Winterbottom (Oxford, 2007) is devoted entirely to a biography of Aldhelm; Ch. 223.3 (p. 562), Aldhelm as '*indigena*' of the '*provintiae*' of Sherborne; and Ch. 188.3 (p. 502) the calculation of Aldhelm's birth in the later 630s from William's statement that Aldhelm was not less than seventy years old when he died (in 709).

2 Francis P. Magoun, Jr 'Aldhelm's Diocese of Sherborne *Bewestan Wuda*', *Harvard Theological Review* 32 (1939), pp. 103–14; and G.B. Grundy 'The ancient woodland of Wiltshire', *Wiltshire Archaeological and Natural History Magazine* 48 (1939), pp. 593–98.

3 For Aldhelm's Irish connections, see my 'Aldhelm of Malmesbury and the Irish', *Proceedings of the Royal Irish Academy* 99C (1999), pp. 1–22.

4 *Gesta Pontificum Anglorum*, Ch. 225 (p. 567), Aldhelm continues as abbot; Ch. 228–229 (pp. 572–75), Aldhelm dies at Doulting and his body is returned to Malmesbury.

5 Aldhelm's scholarship, according to William of Malmesbury (*Gesta Pontificum Anglorum*, Ch. 218, p. 548), even impressed Pope Sergius.

6 Aldhelm's writings are edited in Rudolf Ehwald, ed. *Aldhelmi Opera* (Berlin: MGH Auctores Antiquissimi 15, 1919), and translated in Michael Lapidge and Michael Herren, ed. and trans. *Aldhelm: the Prose Works* (Ipswich, 1979) and Michael Lapidge and James L. Rosier, trans. *Aldhelm: the Poetic Works* (Cambridge, 1985).

7 *Gesta Regum Anglorum* ii, 123 ed. R.A.B. Mynors, R.M. Thomson and Michael Winterbottom (Oxford, 1998), p. 192, g.

8 *Gesta Pontificum Anglorum*, Ch. 188.4 (p. 502); William describes Kenten's relationship to Ine as '*arctissima necessitudine consanguineum*'.

9 Ehwald, *Aldhelmi Opera*, p. X, n. 3; and Lapidge and Herren *Aldhelm: the Prose Works*, p. 181, n. 6.

10 Interestingly, Centwine himself is to be found in at least one late saints' resting-place list (at Glastonbury); see John Blair 'A Handlist of Anglo-Saxon Saints', *Local Saints and Local Churches in the Early Medieval West* ed. Alan Thacker and Richard Sharpe (Oxford, 2002), p. 563.

11 Lapidge and Rosier *Aldhelm: the Poetic Works*, p. 234, n. 11.

12 *Aldhelmi Opera*, p. 14, l. 2.

13 Albert S. Cook 'The possible begetter of the Old English *Beowulf* and *Widsith*,' *Transactions of the Connecticut Academy of Arts and Sciences* 23 (1922), p. 291, n.1.

14 Neil Wright 'Imitations of the poems of Paulinus of Nola in early Anglo-Latin verse,' *Peritia* 4 (1985), pp. 136–42 (reprinted in *History and Literature in Late Antiquity and the Early Medieval West*, Aldershot: Variorum, 1995).

15 *Gesta Pontificum Anglorum*, Ch. 190 (p. 506). For a (in my view) far too critical assessment of the *Handboc*'s very existence, see Alfred P. Smyth *King Alfred the Great* (Oxford, 1995), pp. 232–34; *pace* Smyth, Alfred might well have copied Aldhelm's vernacular poems into a commonplace book essentially devoted to 'devotional' works precisely because they were songs of Christian devotion. See now Paul G. Remley 'Aldhelm as Old English poet: *Exodus*, Asser, and the *Dicta Ælfredi*', *Latin Learning and English Lore* ed. Katherine O'Brien O'Keeffe and Andy Orchard (Toronto, 2005), pp. 90–108.

16 Michael Lapidge 'Aldhelm's Latin poetry and Old English verse,' *Comparative Literature* 31 (1979), p. 230 (reprinted in *Anglo-Latin Literature 600–899*, London, 1996).

17 James Hall Pitman *The Riddles of Aldhelm* (New Haven: Yale Studies in English 67, 1925) [reprint: Archon Books, 1971], p. vi, n. 1.

18 Andy Orchard *The Poetic Art of Aldhelm* (Cambridge, 1994), p. 124 (pp. 102–25 provide a comprehensive treatment of Aldhelm's use of formulaic techniques). See also David Howlett *British Books in Biblical Style* (Dublin, 1997), pp. 284–90 and 295.

19 R.W. Chambers *et al.*, ed. *The Exeter Book of Old English Poetry* (London, 1933), p. 5.

20 Cecilia A. Hotchner *Wessex and Old English Poetry* (Lancaster, 1939), pp. 82–85, and Charles W. Kennedy *The Earliest English Poetry* (New York, 1943), p. 106. The elegiac poems share numerous themes with Aldhelm's writings. Perhaps most notably, there is a passage in the *Seafarer* (ll. 72–80) which merges the pagan heroic ideal of 'fame' (*lof*) with the Christian goal of achieving the angelic life in heaven; see Andy Orchard *Pride and Prodigies: Studies in the Monsters of the Beowulf-Manuscript* (rev. ed., Toronto, 2003), p. 55. In his own *De virginitate*, Aldhelm recasts the life of the consecrated virgin into an heroic pursuit of the angelic life in emulation of the '*rumigerulae virginitatis*' of the early Christian virgin-martyrs as recounted in their *passiones*. The terms of Aldhelm's discourse were, thus, those of his barbarian aristocratic audience; see my 'Aldhelm of Malmesbury's social theology: the barbaric heroic ideal Christianised,' *Peritia* 15 (2001), pp. 58–80.

21 George Philip Krapp and Elliott van Kirk Dobbie, ed. *The Exeter Book* (New York: The Anglo-Saxon poetic records 3, 1936), pp. 340 and 343, with texts on pp. 198 ('Riddle 35') and 200–3 ('Riddle 40'); English translations in Craig Williamson *A Feast of Creatures: Anglo-Saxon Riddle-Songs* (Philadelphia, 1982), pp. 93 and 98–100, for – in a differing numbering (which is dependent upon Williamson's text edition: *The Old English Riddles of the Exeter Book*, Chapel Hill, N.C., 1977) – 'Riddle 33' (*vice* '35') and 'Riddle 38' (*vice* '40'). Aldhelm's 'Lorica' *enigma* (*Aldhelmi Opera*, pp. 111–12) also exists in a Northumbrian translation; see A.H. Smith, ed. *Three Northumbrian Poems* (London, 1933), pp. 18 and 44–46; and Elliott van Kirk Dobbie, ed. *The Anglo-Saxon Minor Poems* (New York: The Anglo-Saxon Poetic Records 6, 1942), pp. cvii-cx, 109, and 199–201. See Jonathan Wilcox 'Transmission of literature and learning: Anglo-Saxon scribal culture', *A Companion to Anglo-Saxon Literature* ed. Phillip Pulsiano and Elaine Treharne (Oxford, 2001), pp. 57–60, for English translations of both the Northumbrian and Exeter Book versions and a summary comparison of these with Aldhelm's Latin original.

22 Frederick Tupper, Jr, ed. *The Riddles of the Exeter Book* (Boston, 1910), pp. 26 and 150–52 for – in a differing numbering – 'Riddle 36' (*vice* '35') and pp. 30–34 and 161–72 for 'Riddle 41' (*vice* '40'); but see Katherine O'Brien O'Keeffe 'Exeter Riddle 40: the art of an Old English translator', *Proceedings of the Patristic, Mediaeval and Renaissance Conference* 5 (1980), pp. 107–17; *eadem*, 'Aldhelm's *Enigma* no. c in Oxford, Bodleian Library, Rawlinson C.697 and Exeter Riddle 40', *Anglo-Saxon England* 14 (1985), pp. 61–73; and *eadem*, *Visible Song: Transitional Literacy in Old English Verse* (Cambridge, 1990), pp. 138–43. See also Paull F. Baum *Anglo-Saxon Riddles of the Exeter Book* (Durham, N.C., 1963), p. 3; Erika von Erhardt-Siebold 'The Old English storm riddles', *Publications of the Modern Language Association of America* 64 (1949), p. 888; and Paul Meyvaert 'The solution to Old English Riddle 39', *Speculum* 51 (1976), pp. 196–97, who suggests Aldhelm's *enigma* on 'Nubes' (*Aldhelmi Opera*, p. 100) as its source.

23 Cf., Christine E. Fell 'Runes and riddles in Anglo-Saxon England', *'Lastworda Betst'* ed. Carole Hough and Kathryn A. Lowe (Donnington, 2002), pp. 269–73; and, for a consideration of Aldhelm as author of the 'Dream of the Rood', see David Howlett 'Inscriptions and design of the Ruthwell Cross', *The Ruthwell Cross* ed. Brendan Cassidy (Princeton, 1992), pp. 92–93.

24 Vivien Law *Wisdom, Authority and Grammar in the Seventh Century: Decoding Virgilius Maro Grammaticus* (Cambridge, 1995), pp. 101–4.

25 See my 'Aldhelm of Malmesbury and the Irish', pp. 14–22.

26 John Carey *King of Mysteries: Early Irish Religious Writings* (Dublin, 2000), pp. 30 and 75.

27 Michael W. Herren and Shirley Ann Brown *Christ in Celtic Christianity* (Woodbridge, 2002), pp. 10–11 and 72–73; they also raise the question of the influence of Pelagian core tenets upon this view of the goodness of nature in the Insular Church (but such theological suppositions fall outside the scope of this article).

28 This was, perhaps, of particular concern to Archbishop Theodore; see, Jane Stevenson *The 'Laterculus Malalianus' and the School of Archbishop Theodore* (Cambridge, 1995), pp. 211–12.

29 Dorothy Whitelock *The Audience of Beowulf* (Oxford, 1951), p. 33.

30 Andy Orchard *A Critical Companion to Beowulf* (Cambridge, 2003), pp. 98–129.

31 Tacitus *Germania*, 15 and 22–23.

32 For example, David N. Dumville '"Beowulf" and the Celtic world: the uses of evidence', *Traditio* 37 (1981), pp. 145–46 (reprinted in *Britons and Anglo-Saxons in the Early Middle Ages*, Aldershot: Variorum, 1993).

33 Andy Orchard, *op. cit.*, pp. 137–49.

34 As spelt out by Beowulf himself in ll. 1384–89.

35 Whitelock, *op. cit.*, p. 82, citing *Beowulf*, ll. 3166–68.

36 *Beowulf*, ll. 3181–82: 'the man...most eager for fame'.

37 Cf., Seamus Heaney *Beowulf* (London, 1999), pp. xiv–xv.

38 *Beowulf*, l. 455: 'Fate goes always as it must'.

39 *Beowulf*, ll. 700–2: 'The truth is made known that mighty God ever rules mankind'.

40 Cf., Andy Orchard *Pride and Prodigies*, pp. 169–71, who finds, in all the texts collected together in the *Beowulf*-manuscript, a similar concern 'with the relationship between pagan past and Christian present, and with the tension between an age which extolled heroic glory and an age in which vainglory was condemned'.

41 David N. Dumville 'The West Saxon genealogical regnal list and the chronology of early Wessex', *Peritia* 4 (1985), pp. 21–66 with re-dated king-list on p. 51 (reprinted in *Britons and Anglo-Saxons in the Early Middle Ages*).

42 The problems, primarily stemming from the archaeological evidence (or lack of it), were first discussed in 1913 by E.T. Leeds *The Archaeology of the Anglo-Saxon Settlements* (Oxford); see also his articles, 'Early settlement in the Upper Thames basin', *Geography* 14 (1928), pp. 527–35; 'The Early Saxon penetration of the Upper Thames area', *The Antiquaries Journal* 13 (1933), pp. 229–51; and 'The growth of Wessex', *Oxoniensia* 19 (1954), pp. 45–60. For an early discussion of Leeds' findings, see Gordon J. Copley *The Conquest of Wessex in the Sixth Century* (London, 1954), pp. 114–70; and for a more recent review of this issue see Barbara Yorke *Wessex in the Early Middle Ages* (London, 1995), pp. 32–34.

43 Barbara Yorke *Kings and Kingdoms of Early Anglo-Saxon England* (London, 1990), p. 132 and see pp. 130–38; see also Patrick Sims-Williams 'The settlement of England in Bede and the "Chronicle"', *Anglo-Saxon England* 12 (1983), pp. 27–34 (reprinted in *Britain and Early Christian Europe*, Aldershot: Variorum, 1995).

44 Sonia Chadwick Hawkes 'The Early Saxon period', *The Archaeology of the Oxford Region* ed. T. Rowley *et al.* (Oxford, 1986), pp. 64–108, especially pp. 75–87.

45 For a succinct account of the determination of the title, see Patrick Wormald *The Times of Bede* (Oxford, 2006), pp. 131–32.

46 Yorke, *Kings and Kingdoms of Early Anglo-Saxon England*, p. 132.

47 Yorke *Wessex in the Early Middle Ages*, p. 59, and *Kings and Kingdoms of Early Anglo-Saxon England*, p. 138.

48 For example, H.E. Walker 'Bede and the Gewissae: the political evolution of the Heptarchy and its nomenclature', *Cambridge Historical Journal* 12 (1956), pp. 174–86; and John Blair *Anglo-Saxon Oxfordshire* (Oxford, 1994), pp. 37–39.

49 Cf., the *Anglo-Saxon Chronicle*, *s.a.* 552, 597, 858D.

50 For example, Kenneth Sisam 'Anglo-Saxon royal genealogies', *Proceedings of the British Academy* 39 (1953), p. 302.

51 Yorke *Wessex in the Early Middle Ages*, p. 49.

52 J.M. Wallace-Hadrill *Early Germanic Kingship in England and on the Continent* (Oxford, 1971), p. 11.

53 *Historia ecclesiastica* iii, 7; when Birinus reached the territory of the West Saxons, he found '*omnes ibidem paganissimos....*' Bede's use of two verbs ('*Sed Brittaniam perueniens, ac primum Geuissorum gentem ingrediens....*') could reflect Birinus' entry into Britain by the Thames and a landing first in the upper Thames valley.

54 Richard Coates 'On some controversy surrounding *Gewissae/Gewissei*, *Cerdic* and *Ceawlin*,' *Nomina* 13 (1989–90), p. 1.

55 *Pace* Yorke *Kings and Kingdoms of Early Anglo-Saxon England*, p. 3.

56 Cf., H.M. Chadwick *The Origins of the English Nation* (Cambridge, 1907), pp. 15–16, but also p. 156.

57 Hermann Moisl 'Anglo-Saxon royal genealogies and Germanic oral tradition', *Journal of Medieval History* 7 (1981), pp. 215–48, notes that Anglo-Saxon royal genealogies were kept orally just as throughout the heathen Germanic world and were sung by a court-poet (the 'scop'). There is a macaronic poem – Old English, Latin, and transliterated Greek – surviving in a 10th-century Canterbury hand, in which Aldhelm is designated an '*aeþele sceop*'; L.G. Whitbread 'The Old English poem *Aldhelm*', *English Studies* 57 (1976), pp. 193–97; ed. Elliott van Kirk Dobbie *The Anglo-Saxon Minor Poems*, pp. xc–xcii, clxix, and 97–98; and *Aldhelmi Opera*, pp. 219–20 (where Ehwald provides a Latin translation). But see, for a cautionary evaluation, Roberta Frank 'The search for the Anglo-Saxon oral poet,' *Bulletin of the John Rylands University Library of Manchester* 75/1 (1993), pp. 11–36, especially pp. 31–35.

58 J.M. Wallace-Hadrill *Early Germanic Kingship in England and on the Continent*, p. 38.

59 R.W. Chambers *Widsith* (Cambridge, 1912), p. 36; Patrick J. Geary *Before France and Germany* (Oxford, 1988), p. 68; and John Moorhead *Theodoric in Italy* (Oxford, 1992), pp. 11–13.

60 Herwig Wolfram *History of the Goths* (Berkeley, 1988), pp. 27 and 114–15.

61 *Aldhelmi Opera*, pp. 14–15. See also H.M. Porter 'Centwine', *Notes and Queries for Somerset and Dorset* 29 (1968), pp. 40–42.

62 Patrick Wormald 'Bede, the *Bretwaldas* and the Origins of the *Gens Anglorum*', *Ideal and Reality in Frankish and Anglo-Saxon Society* (Oxford, 1983 [reprinted in *The Times of Bede*]), p. 118, for the *Brytenwalda* as a 'subjectively perceived status'.

63 Yorke, *Kings and Kingdoms of Early Anglo-Saxon England*, Chapter Eight, particularly pp. 159–67.

64 Cf., Patrick J. Geary *Before France and Germany*, pp. 84–85, for such a consideration at play in Clovis' conversion.

65 For the self-interest of kings at play in the conversion process, see N.J. Higham *The Convert Kings: Power and religious affiliation in early Anglo-Saxon England* (Manchester, 1997).

66 J.M. Wallace-Hadrill *Early Germanic Kingship in England and on the Continent*, p. 65.

67 Eddius Stephanus *Vita S. Wilfridi*, Ch. X.

68 *Aldhelmi Opera*, p. 508; *Aldhelm: the Prose Works*, p. 174.

69 *Aldhelmi Opera*, p. 478; Albert S. Cook 'Aldhelm's "Rude Infancy"', *Philological Quarterly* 7 (1928), pp. 115–19; and Michael Herren *Aldhelm: the Prose Works*, p. 138.

70 Andy Orchard 'Artful alliteration in Anglo-Saxon song and story,' *Anglia* 113 (1995), pp. 454–56, wonders if Æthilwald's 'ill-spent youth' passing the lyre at these drinking parties contributed to the exuberant alliteration of his poems.

71 In his letter to Aldhelm, Æthilwald mentions three of his own poems, two of which are written to Aldhelm and one to Wihtfrid. Two have survived (*Aldhelmi Opera*, pp. 528–33 and 534–35; and now newly re-edited and translated by Brent Miles 'The *Carmina Rhythmica* of Æthilwald', *Journal of Medieval Latin* 14 (2004), pp. 73–114). In the second of these two poems, Æthilwald praises Aldhelm's power and influence as a teacher (ll. 59–60: '*Althelmum nam altissimum/Cano atque clarissimum....*'). In l. 15 and again in ll. 51–52, Æthilwald puns on Aldhelm's name in Latin as '*cassis priscus*' ('old helmet') (see Ehwald *Aldhelmi Opera*, p. 534, fn to l. 15, for usage of '*cassis*' in masculine gender). Presumably, Æthilwald's punning was modelled on Aldhelm's reference to himself, in his own letter to Wihtfrid, as '*priscam protectionis galeam*' (though this phrase is not extant in the text of this letter as it is preserved in *Gesta Pontificum Anglorum*, Ch. 214, pp. 540–43, William of Malmesbury cites it, in Ch. 188, p. 500, in his correction of Faricius' etymology for 'Aldhelm' in Faricius' earlier biography of the saint; see Ehwald *Aldhelmi Opera*, p. 479, n. 1 and p. 524, n. 1). Can we detect behind this martial imagery a reference to Aldhelm's youth? Cf., the similar observations concerning Aldhelm's possible youthful and pre-clerical period of life in Michael Lapidge '*Beowulf*, Aldhelm, the *Liber Monstrorum* and Wessex,' *Anglo-Latin Literature 600–899*, p. 276, n. 22.

72 *Aldhelmi Opera*, respectively, pp. 499–500, p. 497, and pp. 479–80.

73 The behavior Aldhelm castigates could be taken directly from *Beowulf*; e.g., ll. 853f. for high-spirited cavorting on horseback.

74 Eddius Stephanus *Vita S. Wilfridi*, Ch. II.

75 *Aldhelmi Opera*, p. 524, l.9.

76 Hermann Moisl 'The Bernician royal dynasty and the Irish in the seventh century', *Peritia* 2 (1983), pp. 120–24, where he considers that Aldfrith studied among the Irish 'as an aeþeling training for an ecclesiastical career'.

77 *Aldhelmi Opera*, p. 62.

78 Cf., my 'Aldhelm of Malmesbury and the Irish', pp. 19–20.

79 Michael Herren 'Some conjectures on the origins and tradition of the Hisperic poem *Rubisca*,' *Ériu* 25 (1974), pp. 72–74.

80 Guthlac, in the Old English vernacular, became a martial model of the spiritual strength deriving from 'angelic virginity'; see John Bugge *Virginitas* (The Hague, 1975), pp. 33, 46–47, and 50–51. Such concerns were at the core of Aldhelm's theology; see discussion below.

81 Peter Hunter Blair *The World of Bede* (Cambridge, 1970), p. 177.

82 Raymond Van Dam *Leadership and Community in Late Antique Gaul* (Berkeley, 1985), p. 136.

83 See Peter Brown *The Rise of Western Christendom* (2nd edn, Oxford, 2003), pp. 7–9, regarding the 'highly original synthesis of pagan past and Christian present' being worked out in these centuries.

84 Cf., Bertram Colgrave, ed. *The Earliest Life of Gregory the Great* (Lawrence, Kansas, 1968), p. 19; and, for typical references to Gregory I by Aldhelm, *Aldhelmi Opera*, pp. 242, 293, 314 and 390, ll.874–80. Indeed, according to Alan Thacker 'Memorializing Gregory the Great: the origins and transmission of a papal cult in the seventh and early eighth centuries', *Early Medieval Europe* 7 (1998), p. 76, Aldhelm was the 'earliest known exponent of Gregory as the especial apostle of the English' (some two decades before the anonymous Whitby *vita* of Gregory); cf., Anton Scharer 'The Gregorian tradition in Early England', *St Augustine and the Conversion of England* ed. Richard Gameson (Stroud, 1999), p. 190.

85 Brought vividly to life by Peter Brown '*Gloriosus Obitus*: the end of the ancient other world', *The Limits of Ancient Christianity* ed. William E. Klingshirn and Mark Vessey (Ann Arbor, 1999), pp. 296–302.

86 Aldhelm restricts his references to the devil in the guise of a serpent or dragon to his roles in two biblical episodes, as the leader of the rebellious angels expelled from heaven (Apoc. xii) and as the deceiver of Eve (Gen. iii); as such, the devil appears as 'Lucifer' in Aldhelm's treatment of the eight vices in both the prose and verse versions of the *De virginitate* (*Aldhelmi Opera*, p. 239 and p. 464, ll. 2734 and 2741), and as 'Behemoth' in the acrostic preface to his *enigmata* (*ibid.*, p. 97, ll. 4–5).

87 Albert S. Cook 'Aldhelm and the source of *Beowulf* 2523,' *Modern Language Notes* 40 (1925), pp. 137–42, notes the extensive number of synonyms for 'dragon' used both by Aldhelm and the *Beowulf* poet.

88 '*Beowulf*, Aldhelm, the *Liber Monstrorum*, and Wessex', *Anglo-Latin Literature 600–899*, pp. 279–82. Of course, the pestilential dragon was a familiar both biblically (where, as already noted, the devil regularly assumes the guise of a dragon or serpent) and in other vernaculars than the Anglo Saxon; see, for example, the Irish *In Tenga Bithnua* as translated by John Carey *King of Mysteries*, p. 82. Cf., Christine Rauer *Beowulf and the Dragon* (Cambridge, 2000), pp. 51, 52–54, and 55–60. See also, for a dissenting view, Paul Sorrell 'The approach to the dragon-fight in *Beowulf*, Aldhelm, and the "traditions folkloriques" of Jacques LeGoff,' *Parergon* n.s. 12/1 (1994), pp. 60–68.

89 *Aldhelmi Opera*, pp. 241, 368, 258, 266–67, and 309.

90 *Aldhelmi Opera*, p. 489; *Aldhelm: the Prose Works*, pp. 160–61: '...the ghastly three-tongued serpent (*celydrum*) who vomits torrents of rank and virulent poisons...and where once the crude pillars (*ermula*) of the same foul snake (*natricis*) and the stag were worshipped with coarse stupidity in profane shrines (*fanis*)...' (cf., Scott Gwara *Prosa de virginitate* CCSL 124, pp. 45–46; Richard North *Heathen Gods in Old English Literature* (Cambridge, 1997), pp. 51–52; and, for the particular resonance for the Anglo-Saxons of *fanum* as a pagan shrine, as it certainly was for Aldhelm, see Ian N. Wood 'Some historical re-identifications and the Christianization of Kent', *Christianizing Peoples and Converting Individuals* ed. Guyda Armstrong and Ian N. Wood (Turnhout, 2000), pp. 27–30; however, see John Blair 'Anglo-Saxon pagan shrines and their prototypes', *Anglo-Saxon Studies in Archaeology and History* 8 (1995), pp. 2–3 and 25, n.17, who believes that Aldhelm may actually be referring, here, to Roman altars; and, for one such Romano-British shrine in the Selwood area, 'where finds of antlers suggested a cult linked with a horned deity', Katherine Barker 'Institution and landscape in Early Medieval Wessex: Aldhelm of Malmesbury, Sherborne and *Selwoodshire*', *Proceedings of the Dorset Natural History and Archaeological Society* 106 (1984), p. 34, n.4). Similarly, in his poetry, Aldhelm is fond of addressing God as the Thunderer (*Tonans*), a traditional designation of Jupiter but also appropriate to Thor; in pagan Anglo-Saxon England, the worship of Thor is, apparently, evidenced in Saxon areas and not in Anglian territories; see Gale R. Owen *Rites and Religions of the Anglo-Saxons* (Dorset, 1985), pp. 23–25; and Sir Frank Stenton *Anglo-Saxon England*, p. 99.

91 The judgement of Michael Lapidge *Aldhelm: the Prose Works*, p. 3.

92 This is not to deny that Bede was concerned with the larger world, as evidenced by his famous letter to Bishop Egbert of York; see Scott De Gregorio 'Bede's *In Ezram et Neemiam* and the reform of the Northumbrian church', *Speculum* 79 (2004), pp. 1–25.

93 These themes of religious life as akin to that of a warrior and the transmutation of Christian models by a heroic Germanic pattern are developed at length in my 'Aldhelm of Malmesbury's social theology: the barbaric heroic ideal Christianised', *Peritia* 15 (2001), pp. 58–80. Cf., George Hardin Brown 'The dynamics of literacy in Anglo-Saxon England', *Bulletin of the John Rylands University Library of Manchester* 77/1 (1995), pp. 113–16.

94 Andy Orchard *The Poetic Art of Aldhelm*, p. 119.

95 Aldhelm would have been fifteenth in descent from Woden; cf., Albert S. Cook 'The possible begetter of the Old English *Beowulf* and *Widsith*', p. 309, n. 5.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 25–37

All'Antica ornament during the first Renaissance in England: the case of the Draper chapel at Christchurch Priory

NICHOLAS RIALL

Summary

Towards the end of the 1520s, the prior of Christchurch priory – John Draper – commissioned a chantry chapel to be built for his place of burial and commemoration. The project to create this chapel was handed to the mason who had over the previous decade established a reputation for creating avant garde funereal settings that incorporated the latest decorative fashions and who worked for the bishop of Winchester while running the masons' workshop of the priory of St Swithun's, Winchester. This man is identified as Thomas Bertie, and his range of work is discussed in context with his commission of the Draper chantry chapel screen, alongside a discussion of the decorative style he used to some effect – all'antica.

During the first quarter of the 16th century a new style of decorative ornament began to pervade the traditional, Gothic, style of architecture in England. Contemporaries referred to this as *all'antica*, 'antick' or 'in the antique fashion' (Thurley 1993, 85–98; Lewis 1996, 146–51; Howard 2003, 55–57). *All'antica* ornament had spread from Italy to France in the 1490s, and by the 1500s had largely supplanted Gothic decoration in almost all forms of decorative works, ranging from manuscript illumination through schemes for stained window glass and, in particular, the embellishment of architectural settings. Among the most important of the latter was the construction and beautification of the archiepiscopal palace at Gaillon, rebuilt between 1502–1509 (Chirol 1952; Riall forthcoming). This Franco-Italian style of *all'antica* was based on classical forms included by Italian artists such as Crivelli, Mantegna and Signorelli in their paintings, alongside unnamed architects and sculptors who created works such as the façade of the Certosa di Pavia, and was mainly drawn from northern Italy, especially Lombardy. It pre-dated the discovery in Rome of the *grotte*, or buried rooms, of Nero's Golden House on the Esquiline Hill, which gave rise to a different form of decorative treatment: *grotesque* or *grottesche* (Dacos 1969; Godwin 2002). The first Renaissance in France was accompanied by similar developments in the Low Countries, where an especially important media – prints and engravings – began to be produced in large numbers that facilitated the spread of this new decorative style.

Simon Thurley noted that the word 'antique' began to appear in court documents from as early as 1513, with the Revels department perhaps the first to use the style in its production of materials for court festivals, disguisings and tournaments (Thurley 1993, 86). None of these pieces of work have survived, so we cannot tell what style these pieces followed: *grottesche* or *all'antica*. The earliest definitive transmission of the *all'antica* style to southern England, and in this context, to Hampshire is most likely to have been affected through the agency of Richard Fox, bishop of Winchester 1502–28. He may have engaged the services of a team of French craftsmen to work for him at the hospital of St Cross, Winchester, in the mid 1510s. Here, an elaborately decorated *all'antica* frieze was created for a suite of choir furnishings (Smith and Riall 2002, and Riall forthcoming). This early manifestation of the *all'antica* style was defined by the use of a mixture of fantasy creatures: such as fish and birds, interwoven with floral shapes including stylised acanthus and vine leaves, flowers and berries. Among these might be distributed naked cherubs, military trophies arranged on candelabra, and profile portraits contained within medallions. At Christchurch priory, the earliest phase of the first Renaissance can be seen expressed in the decorative carving on the bench ends of the choir stalls (Fig. 1). These were quite probably carved by either the priory's own craftsmen, or by itinerant journeymen. However, this mode of the style barely lasted into the 1520s before being supplanted by a re-interpretation of *all'antica*. This was developed exclusively, or so it seems, around Hampshire. It was primarily based on work in Winchester cathedral undertaken during the

Figure 1; Christchurch Priory: choir stalls, desk end panel with all'antica *motifs, c. 1520–30*

Figure 2: Christchurch Priory: south aisle, Draper chapel screen from the west, erected in 1529. (Photograph: Nicholas Riall)

1520s that probably drew inspiration from prints and engravings of classical subjects, and may have utilised examples of classical architecture that were used to frame the title pages of printed books. What had begun as an imported style full of zoomorphic images set among curvilinear shapes, and one that was applied onto and over largely Gothic forms, as at St Cross, quickly became an anthropomorphic style. This stylistic evolution is notable for its rectangularity and geometric shapes, one which still utilised and was underpinned by essentially Gothic architectural forms. It is this conception of the *all'antica* style that underpins the decorative treatment of Prior Draper's chapel screen in the south aisle of the priory (Fig. 2). This mode of *all'antica* work seems not to have spread into Dorset, where settings decorated with *all'antica* carvings are few and far between. The best example is the treatment of the exterior of the monastic buildings at Forde Abbey, which Pevsner thought might date to 1525–35 (Newman and Pevsner 1972). This is, however, different again to that expressed at St Cross or at Christchurch, either as evidenced in the Pole chapel or in the Draper chapel, and as such constitutes an art-historical problem that has yet to be fully explored. Of a broadly similar date is the Easter sepulchre at Tarrant Hinton.

The Draper chapel was possibly one of the last of a series of commissions that can be linked together by virtue of their overall decorative style: Draper's chapel screen dating to 1529, while the earliest piece of work, a monumental tomb at Sherborne St John in Hampshire for Ralph and Edith Pexall, dates to c. 1520 (Riall 2007a). These works can be linked to the treatment of the presbytery screens in Winchester cathedral that were completed by 1525, and a chapel and monumental tomb for Sir John and Mary Lisle at Thruxton (in north west Hampshire) completed in 1527 (Riall 2007b). There is in addition an undated canopied tomb created for John and Elizabeth Norton in the church at East Tisted (in north east Hampshire), but which probably dates to the period 1525–35 (Riall 2007c). All of these works can be attributed to Bishop Fox's mason, Thomas Bertie, whose career and works will be discussed later.

The Draper chapel has largely eluded architectural historians, whereas the nearby Pole chapel has attracted more interest. The latter was created as a chantry chapel, sited on the north side of the priory chancel, for Margaret Pole, countess of Salisbury, who was beheaded in 1541. The chapel has drawn the interest of architectural historians because of its explicit and overt

Figure 3: Christchurch Priory: Draper chapel showing the stringcourse with inscription, frieze, and cornice. (Photograph: Nicholas Riall)

Italianate detail, alongside its possible connection to the Florentine sculptor Pietro Torrigiano. However, this attribution is dubious, and the chapel is not included by Alan Darr in his catalogue of Torrigiano's works (Darr 1980), while the dating of this work to 1529 is very unlikely (Stannard 1996, 16–17). Maurice Howard thought the Pole chapel should be dated to *c.* 1520, and this has some implications for the development of the Winchester Renaissance style, a point that will be discussed below (Howard 2003, 57–58 and Fig. 2).

The Draper chapel, like the Pole chapel, was built of Caen stone. It was first described in 1834 (Ferrey and Brayley 1834, 67–8 and pl. 15), when its Italianate details were mentioned, which allows us to note that this structure is much the same today as it was then. This is an important point; at both East Tisted and Thruxton alterations to the fabric occurred in the later 19th or early 20th century, resulting in a degree of uncertainty about the veracity of what remains today. The description in the Victoria County History simply describes the Draper chapel as '... a beautiful piece of late Gothic stonework with a frieze of Italian ornament' (VCH 5, 1912, 103). Both the Draper chapel and the Pole chapel were mentioned by G.H. Cook in his survey of *Medieval Chantries and Chantry Chapels*, but this lacks a discussion of the decorative style of these structures (Cook 1947, 146–48). Nikolaus Pevsner considered that the Draper chapel pre-dated the workmanship of the Pole chapel (which he dated to after 1541), and merely noted that the work on the Draper chapel paralleled that at Winchester cathedral (Pevsner and Lloyd 1967, 174–75). In his biography of 'Thomas Berty' (in modern literature this is spelt as Bertie), John Harvey attributed the Draper chapel to Bertie on the basis of the parallels to be drawn between the workmanship of the carvings at Christchurch and Winchester (Harvey 1984, 32–33).

Neither the Pole nor the Draper chapel has any original surviving documentation that establishes when these structures were built. The Pole chapel is noted in a letter written in December 1539 by the commissioners appointed to accept the surrender of the priory, and who commented that they found 'a chaple and monument ... preparyd by the late mother of Raynolde Pole for her buriall which we caused to be defacyd' (VCH Hamsphire, **2**, 1903, 159). The Draper chapel has the date 1529 painted in black, though this may originally have been a very dark brown, on the stringcourse (Figs 2 and 3).

Prior Draper II

John Draper II was the second prior of this name, his namesake having been prior 1477–1501. Very little is known about him before his installation as prior of the Augustinian canons at Christchurch. He was installed as the twenty-sixth and last prior on 31 January 1521 (Richard Fox *Episcopal Register*, iv, fols 31–6). He studied at Oxford: he is recorded as having supplicated for a Bachelor of Theology after twelve years of study in March 1522 (Emden 1974, 175, under Draper, John). He does not appear to have emerged on the national stage in any significant way. Apart from an appointment as a chaplain to Henry VIII in 1538 (*LPFD*, Henry VIII, xiii,

pt i, 415), there is no mention of him in the collections of state papers – *Letters and Papers Foreign and Domestic* (Brewer, J.S. *et al.* 1862–1932). It fell to him the dolorous duty of having to submit to royal authority and surrender the priory, an event which took place in November 1539 (*LPFD*, Henry VIII, xiii, pt I, 415; ibid., xiv, pt ii, 211; ibid., v, 549). Draper appears not to have been greatly incommoded by this turn of events: he was awarded a pension of £133 6*s*. 8*d*., and use of the former priory properties of Somerford Grange and Herne or Heron Court. Draper was also the bishop of Neapolis *partibus infidelium* – he was appointed by papal provision in November 1532 (Emden 1974, 175); this was an honorary episcopate which probably enabled Draper to serve as suffragan of the bishop of Winchester. He was vicar of Puddletown (from 29 January 1536) and rector of Iwerne Courteney (from 24 February 1536), both in Dorset, and was a canon prebendary of Winchester cathedral (from March 1541) and vice dean of the cathedral, all of which he held until his death. He died 29 September 1552. His will, written in June 1549, was proved 3 February 1553 (Emden 1974 under Draper, refers to NA PROB 11/36).

The Draper Chapel

Prior Draper chose the eastern bay of the south aisle for his chantry chapel; all that was required to create this chapel was to install a screen to enclose it on the west (Fig. 2) and outfit it with a tomb and an altar. In the event, Draper was never buried here and neither tomb nor altar appears to have been made. His remains and grave slab were moved to their present position, in front of his own chapel screen, in 1822 (Foster 1985, 54–56). It is quite possible therefore that the chapel never was outfitted to fulfil its original function.

The design of the chapel screen is close to that of the presbytery screens in Winchester cathedral, but with the addition of a number of niches that would originally have been intended to house statuary. This was probably a conscious echo of the architectural programme of Bishop Richard Fox's chantry chapel built during the 1510s in Winchester cathedral. The design of Draper's screen is based on elements drawn from the repertoire of the Tudor court style, and can be seen in the treatment of the two four-light windows, the blind panelling beneath, the canopied niches, the crenellated cornice and the domelets that cap the whole ensemble. The niches are

Figure 4: Winchester cathedral: east bay of the north presbytery screen from the north, showing the remodelled tombs beneath the arcade of fenestration capped by the all'antica *frieze, c. 1520–25. (Photograph: Nicholas Riall)*

Figure 5: Winchester cathedral: east bay of the north presbytery screen, detail of the frieze. (Photograph: Nicholas Riall)

Figure 6: Christchurch Priory: Draper chapel, detail of door head showing all'antica *treatment of the spandrels and niche corbels. (Photograph: Nicholas Riall)*

capped with gables that are crocketed and cusped to their pinnacled finials in a treatment that comes straight out of any Gothic stylebook, but it is also redolent of the architectural programme of the Henry VII chapel at Westminster Abbey (Tatton-Brown and Mortimer 2003). Quietly intruded among all of this, there is much surface decoration in the *all'antica* style similar to that previously applied to other monumental settings, such as those at Sherborne St John and Thruxton (Riall 2007a; 2007b) as well as the presbytery screens in Winchester cathedral (Biddle 1993; Riall 2005, 277–304).

The most pronounced of this *all'antica* work is the frieze that runs across the top of the screen, above a painted inscription that informs us that this work was created in 1529, and below a crenellated cornice (Figs 2 and 3). The design of this frieze is based upon a repetition of three main motifs: an urn from which hang bunches of grapes, a slashed volute clad with leaves that link the urn to the next motif – a palmate frond that also emerges from an urn that is linked by a second volute to a repeated urn with grapes. Set in along this frieze are three shields: those either end carrying lettering **JD** and **PR**, for John Draper – prior, and in the centre, **IHS**, dedicating the chapel to Jesus. It is probably safe to assume that a statue of Jesus would have occupied the central, and largest, niche in the screen, with a statue for the Blessed Virgin Mary in one of the others. At first sight, there is a striking sense of symmetry running through the carving of the frieze, but closer inspection reveals that this is an illusion. Each of the urns in the sequence differs somewhat, one from the next, with the decorative treatment of one urn slightly and delicately changed in the next. This is notable in the junction of the stems and bowls of the larger urns, and in the treatment of the lips of the smaller urns (Fig. 3). This is a characteristic trait of this type of work, and especially so of this carver, and is paralleled in the friezework at Winchester cathedral (Fig. 5). The iconography is readily apparent; the urns with grapes a clear reference to the Eucharistic vessel of wine, while the palmate fronds indicate the communion bread. This becomes more apparent by reference to the earlier frieze at Winchester cathedral where ears of grain were included among the palmate fronds (Fig. 5). Had the palmettes appeared alone then they might conceivably have indicated a reference to the wider church in its victory of good over evil, although an additional explanation might point towards Christ's entry into Jerusalem on Palm Sunday. However, in this context, and interlinked with grapes and an urn, the palmate fronds point towards the Eucharist. More subtle is the constant reference to the Holy Trinity: three motifs repeated in the frieze, three shields, and three groups of statuary.

Figure 7: Thruxton, Hampshire, detail of the frieze from the monumental canopy over the Lisle tomb, c. 1524–27. (Photograph: Nicholas Riall)

The window transoms offered another surface for the mason to cover with *all'antica* detail. The main motif, a slashed volute, is drawn from that used in the frieze which is linked head and tail to small floral motifs. But it was on the door head and on the corbels beneath the niches either end of the screen that the carver was given greater freedom to express his vision of *all'antica* work. The niche corbels feature shields superimposed upon cornucopias that are swagged with leaves and with palmate fronds (Fig. 6). The stylisation of these is a direct echo of the frieze at Thruxton (Fig. 7), created *c.* 1524 for the monumental surround to the Lisle tomb (Riall 2007b). The shield above the door offers an image of the priory, one that appears also among the floor tiles in the priory, and the letters **ID**, with beaded cords emerging from behind the cornucopias. Either side are smaller motifs, those in the middle a repetition of the palmate design from the frieze, and at each end two further motifs set beneath blank shields – both motifs are superficially similar but actually quite different.

Spandrels were a favourite setting for this mason to enlarge upon his repertoire of *all'antica* motifs, and the Draper screen offered a further opportunity to develop motifs suitable to this type of setting – effectively a long right-angled triangle. A favourite technique with this type of setting was to utilise a shield superimposed upon a collection of interlinked motifs. The Draper example has a shield clasped with cartouches top and bottom, these shields are today blank but were presumably originally painted. Projecting into each corner of the spandrel are stylised bunches of grapes, these being linked together by a candelabra based around slashed volutes and further floral motifs (Fig. 8). The Draper spandrel design is especially close to that carved on the door head in the north presbytery screen at Winchester cathedral, which have the letters **HB** for Henry Broke who was elected prior of St Swithun's in 1524 (Fig. 9). The smaller spandrels in the window heads are similarly treated, those to the left carrying the letters **JD** set among floral motifs, those to the right having a spray of flowers that echo the workmanship of the frieze on the south screen in Winchester cathedral, one of the first expositions of this particular form of *all'antica* work.

Painted onto the stringcourse is an inscription: *ANNO DOMINI MILLESIMO QUINCENTESIMO XXIX* (Figs 2 and 3). The style in which this lettering was executed calls for some comment. At the beginning of the 16th century, black-letter script was utilised for public display scripts in English contexts. During the first quarter of the 16th century, Gothic script was superseded by a variety of Renaissance experimental display scripts, based on Classical and Romanesque script forms, alongside extrovert renderings of initial letters, such as in the Langton and Silkstede chapels in Winchester cathedral. The Draper inscription consciously echoes the inscription on the cathedral south presbytery screen. Here, Bishop Fox's motto – *Est Deo Gratia* – was cut into the hollow of the stringcourse and executed in a somewhat idiosyncratic but uniform cursive decorative script that is probably based on 12th-century Romanesque originals, such as Bishop Henry de Blois' *Winchester Bible*. This Romano-Gothic script deliberately avoided Roman sans-serif classical forms: typically, the A has a bar across the apex and often has a broken crossbar; the D is lower case with the upright curled above; the diagonal of the N is curved; and the O

Figure 8: Christchurch Priory: Draper chapel, detail of door head spandrel. (Photograph: Nicholas Riall)

Figure 9: Winchester cathedral, doorway in north presbytery screen, detail of the spandrel showing the letter B [for Prior Henry Broke] surrounded by all'antica *detail, after 1524. (Photograph: Nicholas Riall)*

is pointed. Throughout all of these letters there was a tendency to splay the ends, a stylistic trait that is occasionally termed as a fishtail-serif, as well as to add a bulge or some other effect to the middle of the stem. As a style, this form of decorative script found favour across Europe from the end of the 15th century and, in England and Wales, was still being employed in the later 16th century (Gray 1986, 148–50). The Winchester south screen has, in Arabic numerals, the date 1525. By contrast, the north presbytery screen, also dated 1525, has mottoes executed in a classical Roman script, as are the inscriptions on the tombs beneath this screen. Notwithstanding the dates applied to the Winchester cathedral screens, the north screen is probably slightly later in date than the south screen, which implies that the Draper screen while incorporating an *avant garde* fashion in terms of its Italianate decorative programme was, in turn, somewhat conservative. The style of the inscription, and of the overall architecture, are throwbacks to earlier fashions, reflecting the style and ethos of both Richard Fox's and Margaret Pole's chantry chapels.

Figure 10: Christchurch Priory: Pole chantry chapel from the south, c. 1520. (Photograph: Nicholas Riall)

Figure 11: Christchurch Priory: Pole chantry chapel, detail of the all'antica *candelabra-work on the buttresses; note the juxtaposition of the Renaissance detailing alongside the traditional Gothic architectural detail. (Photograph: Nicholas Riall)*

The Pole Chantry at Christchurch Priory

Any discussion of the Draper chapel must take into account the Pole chantry chapel, because of the Renaissance decoration that forms an essential part of that architectural work. The Pole chapel, set on the north side of the priory chancel, provides another essay in the transition from Gothic to Renaissance decorative schemes applied to architectural settings (VCH Hampshire 5, 1912, 103; Pevsner and Lloyd 1967, 176; Howard 2003, 57–8). John Harvey thought that Thomas Bertie, the bishop's mason in Winchester, was responsible for creating the Pole chantry as well as that for Draper (Harvey 1984, 33); this is an idea that requires some exploration, but which – as will become apparent – is implausible.

Margaret Pole was cousin to Henry VIII's mother, Elizabeth of York, and was a senior member of the court (Pierce 2003). Anyone close and with a claim to the throne in the latter part of Henry's reign was held suspect by the king, thus Margaret's fate to be attainted for treason and then executed cannot have caused surprise at the time, however much historians today deprecate the fact (Starkey 2004, 614). Her Hampshire home was the nearby fortified house at Warblington. There is no documentary evidence recording when the chantry chapel was commissioned, nor is it recorded who built it or at what cost.

It is not intended to offer a full description of this structure here (Fig. 10) but some comment on the Italianate decorative programme is necessary. *All'antica* ornament can be seen on the buttress-shafts that divide the bays of the structure and on the horizontal panels that link these together. The shafts contain sequences of stacked motifs, most of which are based on urns or vases with, interspersed among these, much use of floral or foliate motifs (Fig. 11). Each shaft has a vertical series of motifs that differs down the length but which is repeated on adjacent panels. There is a high level of symmetry about the application of these candelabra. However, while they fill the ground on which they are applied, they are otherwise unsupported by other Classically inspired motifs. There are, for instance, no capitals here, nor any other form of Classical decoration such as egg-and-dart or water-leaf decoration. Stylistically, the design and layout of the carving on the

Figure 12: Christchurch Priory: Pole chantry chapel, north face, detail of the all'antica *work on the transoms. (Photograph: Nicholas Riall)*

Figure 13: All'antica *styled friezes: top, Christchurch priory; centre, Winchester cathedral; bottom, Thruxton church. (Photographs: Nicholas Riall)*

Pole chapel echoes that of late quattrocentro painters such as Carlo Crivelli, whose *Annunciation with Saint Emidius* is filled with candelabra of a similar style, as well as exemplars of classical architecture and candelabra in the paintings of Mantegna and Pinturicchio. This might account for the tentative suggestions that have been made linking Pietro Torrigiano to this work.

The transoms are in an entirely different idiom, one that reflects the development of *all'antica* stylisation in the early 16th century. The design shows a tripartite layering of panels separated by a range of relatively uncomplicated, plain mouldings (Fig. 12). The uppermost of these panels provides a design based on the water-leaf, which is repeated in a crest-like sequence in

series with a flute-like flower head or furled leaves. One would hesitate to say categorically that these are Classically inspired as this leaf appears in Gothic work, but in the context of the sequences beneath this would appear to be the correct interpretation. The other two panels are clearly Renaissance. The central panels show a sequence of winged putto heads and urns with fruit set in an alternating sequence linked by slashed volutes and leaf-adorned cornucopia. The lowest transom carries a similarly patterned series, which here comprises bunches of leaves and upturned palmettes with these linked by leafy-volutes. An especially notable aspect of this work is its staccato repetition; all the motifs are replicas one of the next, there is no individual characterisation, no element of that playfulness of execution of motifs so that, on close inspection, as we see so often elsewhere, one motif differs in some slight detail from the next. It is that characteristic of difference in the detail, the non-symmetry within the overall symmetry, that so marks the frieze at St Cross and is a feature of Silkstede's stalls in Winchester cathedral (Riall 2003), and which also informed Thomas Bertie's work too.

Within the priory, tradition asserts that it was Pietro Torrigiano who designed the chapel; but this seems unlikely. The Pole chapel does not appear among the works created by Pietro Torrigiano and exhaustively catalogued by Darr in his doctoral thesis (Darr 1980). As this was to all intents and purposes the equivalent of a royal commission, the designer of the chantry could have been, and probably was, any one of the leading master masons of the day. However, until some closely detailed analytical work is done on profiling the mouldings, and exploring the proportions of the crockets and finials, it is unlikely we can establish who was responsible with any sense of certainty. There are none of what we may suggest are Bertie's trademark designs here. And yet there is some hint in the transoms of designs that appeared in the two cathedral friezes. The central rinceaux in the Pole transom (Fig. 12) hints at the Pexall and cathedral south frieze, while the bottom rinceaux hints at the cathedral north frieze and the Lisle frieze. Of particular interest are the palmettes which are intruded into Bertie's work in the north presbytery frieze and the Lisle frieze (Fig. 13). The Pole chapel offers a potential source for the motif. But, when we draw back from the detail and look at the tomb in its entirety we see a florid Gothic style that has no echo of the work in the Winchester screens or the arcade of windows in the external walls of the presbytery.

By contrast, Thomas Bertie's work has an assemblage of *all'antica* motifs contained within a select group of architectural settings that exhibit a consistency of style that is recognisably all of a piece, and which can be linked to just the one mason's workshop. The output of the workshop can be seen as developing from the tomb cases in presbytery screens in the cathedral and through his work at Sherborne-St John (Hampshire) in the Pexall funerary monument, back to the presbytery screens in the cathedral, now developing at Thruxton (Hampshire) in another funerary monument together with a chapel for the Lisles, and then at Christchurch priory in the Draper chapel. The style of the work on the Pole chantry does not fit into this stylistic sequence, whether we date the Pole chapel to *c.* 1520, and thus contemporary with the earliest of the Bertie works, or suggest it comes later, which then demands an explanation as to why Bertie has radically changed his decorative technique. We should consider the potential input of the client and her requirements. The client: rich, powerful and well-connected, Margaret Pole, countess of Salisbury, was a member of Queen Katherine's household for a number of years, especially in the later 1520s during the time of the King's Great Matter (Starkey 2004). We can imagine Katherine, known for her devout Christianity, encouraging her friend and companion to construct a suitable chantry chapel; no doubt the designs for its structure and decoration were much discussed by the two ladies. This, however, cannot explain why the Pole chapel stands away from the collection of works that are suggested as having coming from Bertie's workshop, one that was moreover patronised by men who were all connected with Hampshire. Bertie appears not to have had any dealings with the court.

It is suggested here that the Pole chapel was not the work of Thomas Bertie. It is feasible that Bertie may well have seen the chapel and have taken into his repertoire the designs we see on the transoms and used them, reconfigured and redesigned, in his own work. If so, this would imply that the Pole chantry dates to the early 1520s or even the late 1510s, perhaps sometime between 1518–1522, and this, on the basis of the strength of the Gothic element in the design and the Quattrocento nature of the *all'antica* work, would seem the best approximation for dating this structure that we can at present reach.

Thomas Bertie and the Winchester Renaissance Style

In the later 1510s and throughout the 1520s, the fashion of choice for the aristocracy and leading members of society, especially in southern and south-east England, was a hankering for the *all'antica* style. Perhaps best epitomised by survivals such as Thomas Wolsey's classical medallions at Hampton Court palace or the architectural terracotta at Sutton Place (Surrey), the style was also widely employed in ecclesiastical settings, such as Forde Abbey, as well as in private housing to adorn all manner of objects from choir stalls to chairs and cupboards, and wall panelling and murals. In Hampshire, *all'antica* decoration was apparently first applied to a set of choir furnishings set up in the church of the Hospital of St Cross in *c.* 1517–20 (Smith and Riall 2002; Riall 2005; Riall forthcoming). The creation of this work prompted Thomas Silkstede, the prior of St Swithun's, to order a set of stalls or presses to be created in a like style and set up in the south transept of Winchester cathedral. This work dates to *c.* 1520 (Riall 2003). These early works are

characterised by the use of profile portraits set in medallions, putti shown either riding various fantastic creatures – mostly dolphins – or simply as winged heads, alongside a medley of masks, creatures, flowers, and foliage all symmetrically displayed in fantastic arrangements. These early works were almost certainly inspired by contemporary or somewhat earlier pieces created in France in places such as Tours, Rouen, Amiens, Fécamp, and Gaillon – the last being the archiepiscopal palace of the archbishops of Rouen and where a suite of stalls that was created in 1508–10 provided the inspiration for the designs of the choir stall frieze at St Cross (Blunt 1969; Riall 2007d; Riall forthcoming).

Sometime around 1520 the character of the *all'antica* style as applied to work in Hampshire changed. Profile portraits no longer dominate the designs, indeed there are only two such portraits among works created in the 1520s, with both occurring on the chapel frieze at Thruxton (Riall 2007b). Full length putti are largely abandoned: they mainly become utilised simply as fashionable supporters for armorial bearings – probably in imitation of Thomas Wolsey's terracotta plaque at Hampton Court – as may be seen at The Vyne and on the Norton funerary monument at East Tisted (Riall 2007c). The fantastic creatures – largely based on pelicans, cranes, peacocks and dolphins – that predominate in the St Cross frieze are replaced with more amorphous shapes that are geometric and curvilinear but still carry a classical feel. A new style emerges locally in Hampshire, the Winchester Renaissance style, one that can be clearly identified as applied to a small group of architectural settings among which is the Draper chapel screen. These settings can be attributed to the workshop of Thomas Bertie, mason to the bishops of Winchester from the 1510s and through to the late 1530s, as well as the retained mason for St Swithun's priory (Winchester cathedral after the Reformation).

Thomas Bertie can be linked to these Renaissance-styled works through an indirect reference to him in the will of Mary Lisle (Lysley), widow of Sir John Lisle of Thruxton, a small village in north-west Hampshire. Sir John Lisle died early in 1524 and his widow, Mary, died later in the year leaving instructions to the executors of her will to '...cause to be made a chapel or an ambulatory after the plot and bargain made by my husbonde wt my lorde of Wynchestre's mason' (Lady Mary Lysley's will, lines 6 to 9, National Archives, PROB 11/21; *VCH Hampshire* 4, p.389, n.66; Riall 2007b, 36–7).

Thomas Bertie's origins and early years of work are obscure, constituting a problem that is much hindered by the loss of documentary records. The building accounts for Winchester cathedral have mostly disappeared, lost either during the Dissolution or during the civil wars of the 17th century when Cromwell's men made boats of paper stolen from the cathedral. One set of accounts to survive, the *Custos Operam* roll of St Swithun's priory for 1532–33, mentions payments made to Thomas for repair works carried out in the cathedral and for an annual retainer as the priories' mason (Kipling 1892). Thomas went on in the later 1530s to work at Titchfield Abbey, converting the former monastic church into a county house for Thomas Wriothesley, later earl of Southampton (Hare 1999, 17–20), and thereafter becoming involved in the construction of the artillery forts erected to guard the Solent: Bertie worked at Calshot, the two forts at Cowes, the now razed fort at Hasilworth, possibly Netley and then Hurst, to which he was eventually appointed captain (Colvin *et al* 1975; Riall 2005, 275–6). John Harvey established that Thomas was the son of Robert Berty, mason, of Bearsted in Kent, who died in 1501/02 and who left his mason's tools to his two sons, which clearly implies that both sons followed in their father's footsteps (Harvey 1984, 32–3; and see Round 1910). Harvey concluded from a reading of Robert's will that Thomas was then under twenty, and that he was probably born *c.* 1485. Robert Berty had been a member of the team that worked on the late 15th and early 16th-century development of the fabric of Canterbury cathedral. It is entirely probable that Thomas began training as a mason and learning his craft as a mason and stone carver at Canterbury cathedral, perhaps under the direction of Robert and William Vertue or John Wastell, who were among the leading masons of the day.

We do not know who or what brought Bertie to Hampshire, but the earliest reference to him is a documentary record that shows he was living in the High Street of Winchester in 1516/17. The most likely explanation for Bertie's presence in Winchester would appear to be that Thomas was brought to Winchester when William Vertue was commissioned by Richard Fox (bishop of Winchester 1501–28) to take the master mason's role in the creation of a new great east window in the cathedral church alongside the remodelling of the presbytery and the cathedral transepts (Smith 1988, 150–91). Bertie then remained in Winchester, perhaps assuming the role as resident mason charged with the day-to-day running of the works at Winchester cathedral, Vertue himself only occasionally being present. We can discount identifying the bishop of Winchester's mason mentioned in Mary Lisle's will as William Vertue as his documented works, such as at Eton College and St George's chapel in Windsor castle, have no trace of Renaissance decoration. While Thomas Bertie may have had little hand in the designing of Bishop Fox's chantry chapel, built in the south transept of the cathedral in the mid 1510s, he was possibly involved in its construction. More certainly, he would have been working on the reconstruction of the presbytery walls and the creation of new aisle vaults, which may have been completed shortly before 1520.

Fox had intended to renew the cathedral transepts; indeed work on this project began in the late 1510s with the insertion of temporary wooden structures to support lowered roofs – the 'temporary' beams are still *in situ* five hundred years later. However, this project was abandoned and Fox poured his money and energies into

the completion of his new founded college of Corpus Christi at Oxford, which was inaugurated in 1517. At this point, with his most important patron no longer sponsoring major pieces of work locally in Hampshire, Bertie began to contract for smaller pieces of work outside Winchester, doubtless encouraged to do so by the priory, which may well have had a financial interest in the workshop that Bertie ran. The first of these works was possibly a chapel and two tombs for the Paulets at Basing (in north-east Hampshire). The chapel has a plaque indicating it was completed in 1519 (Crook 2002, fig. 13, and see pp. 104–5). There is no trace of Renaissance decoration on the Basing works but the underlying architectural themes, in the idiom of the Tudor Court style which was a realignment of the mainstream Gothic style, reappear in later works on which *all'antica* decoration was used to striking effect. Soon after, perhaps as early as 1520, Bertie was working on another chapel, and a rather more sumptuous tomb, for Sir Ralph Pexall at Sherborne-St-John, a few miles distant from Basing. The Pexall chapel remained essentially Gothic in its style, as did the underlying style of the Pexall tomb – but the decoration on both tomb and on the frieze of the tomb canopy arguably provides the first example of the Winchester Renaissance style as executed by Thomas Bertie (Riall 2007a).

The Pexall tomb is echoed in the treatment on the frieze above the south presbytery screen in the cathedral. The completion of Fox's chantry chapel appears to have led onwards, perhaps with a short break between the two pieces of work, to the renewal of the presbytery screens; the south screen clearly patronised by Bishop Fox: his personal badge, a pelican vulning, is everywhere to be seen carved on the frieze above this screen. Patronage of the north screen is less obvious, as there are references to Bishop Fox, his steward William Frost, and the prior of St Swithun's from 1524 – Henry Broke (Biddle 1993, 268–74; Riall 2005). As mentioned earlier, these screens carry the date 1525 carved in Arabic numerals, this indicating a completion date for the overall project of both screens. The frieze above the south screen parallels that above the Pexall tomb and is conceivably earlier by some years than the north screen frieze. This second frieze echoes the work on the Draper screen, which as we have seen dates to 1529, and that at Thruxton where the frieze in the canopy over the Lisle tomb carries overtones of both the cathedral frieze and the Draper frieze. The Lisle frieze was carved sometime in the mid-1520s but was completed not later than 1527 (Riall 2007b). A series of tombs that lay in the path of the north screen in Winchester cathedral were renewed by the provision of new tomb cases, all heavily decorated with *all'antica* motifs. These provided a second general theme of workmanship, one that found echoes in the Pexall and Lisle tombs noted above, that also appears in the Draper screen, and finally appeared in a last tomb – for the Nortons at East Tisted in north-east Hampshire – which is undated but was perhaps created *c.* 1530–35 (Riall 2007c). These are of course the survivals; it is entirely feasible that Bertie created other monumental tombs that were set up within monastic churches and which perished following the Dissolution of the monasteries.

As mentioned earlier, Thomas Bertie was noted in 1538 in connection with the conversion of Titchfield Abbey into a country house. There is no trace of Renaissance ornament on the surviving buildings, indeed Italianate ornament may have been thought too close to Rome and Catholicism, and was therefore considered inappropriate, especially so given the random violence of a despotic king. The Winchester Renaissance style faded away, reappearing in a renewed and somewhat different mode in decorative schemes applied to tombs across Sussex, such as those at Boxgrove, Racton and Petworth (Riall 2007d).

Conclusion

The Draper chapel has largely escaped the attention of architectural historians, not so much because it is uninteresting but rather more that, given the sheer numbers of such chapels – five remain in Christchurch priory alone – individual chapels attain significance either because they are of more than local importance or, as in the case of the Draper chapel, because they can be linked to an individual designer and builder. The inclusion of the Draper chapel among the series of tombs and settings created by Thomas Bertie allows us to see not only a further exemplar of his work, but also to see another example of his versatility alongside his ability to respond to a particular architectural problem. There is moreover a case for seeing the Draper chapel as confirmation of his particular vision of *all'antica* work, combined with a realisation that Bertie had reached a solution to the problem, as he saw it, to combining *all'antica* and Gothic in a harmonious composition even if this might not appeal to modern architectural purists.

Acknowledgements

I am especially grateful to the University of Wales at Swansea who awarded me a studentship to research for my PhD in 2002–05, and to Dr John Law and Professor Stuart Clark for their supervision and support of my studies. I am indebted to Rodney Hubbuck and John Crook for discussion of Thomas Bertie and his building works; and I am grateful to an anonymous referee for comments on an earlier draft of this paper.

BIBLIOGRAPHY

Manuscript sources

Richard Fox, *Episcopal Register*, iv, fols 31–6. Hampshire Record Office, 21M65/A1/21.

National Archives: will of John Lysle (*sic* Lisle) PROB 11/21 (1524); will of Mary Lysley (*sic* Lisle) PROB 11/21 (1524).

Primary printed sources

Brewer, J.S. *et al.*, 1862–1932, *Letters and Papers, Foreign and Domestic of the reign of Henry VIII*, 21 vols, London.

Kipling, G.W., 1892, *Compotus Rolls of the Obedientiaries of St Swithun's Priory, Winchester*, Winchester.

Secondary sources

Biddle, M., 1993 'Early Renaissance at Winchester', in J. Crook (ed.), *Winchester Cathedral. Nine Hundred Years*, Chichester, 257–304.

Blunt, A., 1969 'L'influence Française sur l'architecture et la sculpture décorative en Angleterre pendant la première moitié du XVIme siècle', *Revue de l'Art* **4**, 17–29.

Chirol, E. 1952 *Le Château de Gaillon*, Rouen.

Cook, G.H. 1947 *Medieval Chantries and Chantry Chapels*, London.

Colvin, H.M., Ransome, D.R. and Summerson, J., 1975 *The History of the King's Works*, **III**, London.

Crook, J., 2002 'New light on the history of St Mary's Church, Old Basing, Hampshire: an incised design for a post-medieval window', *J. Brit. Archaeol. Assoc.* **154**, 92–133.

Dacos, N., 1969 *La découverte de la Domus Aurea et la formation des grotesques à la Renaissance*, London.

Darr, A.P., 1980 'Pietro Torrigiano and his Sculpture for the Henry VII Chapel, Westminster Abbey', unpubl. PhD thesis, New York University.

Emden, A.B., 1974 *A Biographical Register of the University of Oxford A.D. 1501 to 1540*, Oxford.

Ferrey, B. and Brayley, W., 1834 *The Antiquities of the Priory of Christchurch, Hampshire*, London.

Godwin, J., 2002 *The Pagan Dream of the Renaissance*, London.

Gray, N., 1986 *A History of Lettering*, Oxford.

Foster, J. R., 1985 *Christchurch Priory: 900 Years*, Christchurch.

Hare, J., 1999 *The Dissolution of the Monasteries in Hampshire*, Hampshire Papers **16**, Winchester.

Harvey, J.H., 1984 *English Mediaeval Architects. A Biographical Dictionary down to 1550* (rev edn), Gloucester.

Howard, M., 2003 'All'antica ornament: its use and limitations in England (1520–1550)', in J. Guillaume (ed.), *L'Invention de la Renaissance. La réception des formes 'À L'Antique' au début de la Renaissance*, Actes du colloque tenu à Tours du 1er au 4 Juin 1994, Paris, 55–66.

Lewis, E., 1996 'A sixteenth-century painted ceiling from Winchester College', *Proc. Hampshire Field Club and Archaeol. Soc.* **51**, 137–65.

Newman, J. and Pevsner, N., 1972 *The Buildings of England. Dorset*, London.

Pevsner, N. and Lloyd, D., 1967 *The Buildings of England. Hampshire and the Isle of Wight*, London.

Pierce, H., 2003 'Pole, Margaret, *suo jure* countess of Suffolk (1473–1541)', *Oxford Dictionary of National Biography*.

Riall, N., 2003 'Thomas Silkstede's Renaissance-styled canopied woodwork in the South Transept of Winchester Cathedral', *Hampshire Studies* **58**, 209–25.

Riall, N., 2005 'Bringing the Renaissance to Tudor England: The role of Richard Fox and his frieze at Cross, Winchester', unpubl. PhD thesis, University of Wales Swansea.

Riall, N., 2007a 'Thomas Bertie, bishop's mason, and the early Tudor Renaissance styled tomb of Ralph and Edith Pexall at Sherborne St John, Hampshire', *Proc. Hampshire Field Club and Archaeol. Soc.* **62**, 143–67.

Riall, N., 2007b 'A Winchester mason and the early Renaissance style in the 1520s: Reconstructing the "lost" ambulatory chapel of Sir John and Mary Lisle at Thruxton church, Hampshire', *Architectural History* **50**, 31–58.

Riall, N., 2007c 'An early Italianate tomb at East Tisted, Hampshire', *Alton Papers* **11**, 25–37.

Riall, N., 2007d 'The early Tudor Renaissance in Hampshire: Anthony Blunt and "L'influence Française sur l'architecture et la sculpture décorative en Angleterre pendant la première moitié du XVIme siècle" revisited', *Renaissance Studies* **21/2**, 218–53.

Riall, N., forthcoming 'The diffusion of early Franco-Italian *All'antica* ornament: the Renaissance frieze in the chapel of the Hospital of St Cross, Winchester and the Gaillon stalls now at St Denis, Paris', *Antiquaries Journal*.

Round, J.H. 1910 *Peerage and Pedigree*, **I**, London.

Smith, A., 1988 'The life and building activity of Richard Fox, *c.* 1447–1528', unpubl. PhD thesis, University of London.

Smith, A. and Riall, N., 2002 'Early Tudor canopywork at the Hospital of St Cross, Winchester', *Antiq. J.* **82**, 125–56.

Stannard, M., 1996 *Christchurch Priory*, London.

Starkey, D., 2004 *Six Wives. The Queens of Henry VIII*, London.

Thurley, S., 1993 *The Royal Palaces of Tudor England*, New Haven and London.

Tatton-Brown, T. and Mortimer, R. (eds), 2003 *Westminster Abbey. The Lady Chapel of Henry VII*, Woodbridge.

Victoria County History of Hampshire and the Isle of Wight, 1900–14 (5 vols), London.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 39–47

Mobility in Victorian Dorset

JOHN FRIPP

Summary

Mobility is not a 21st-century phenomenon. This article uses 19th-century censuses to study movements among some small parishes and a larger Dorset town. Thie work shows that in the Victorian era, many factors led to a surprisingly high level of movements, both within Dorset and more widely. These are illustrated by the stories of several families, showing various types of movement.

The 19th century brought hard times for many southern country-dwellers. Agriculture went through long periods of depression, wages were low, and employment uncertain. Dorset agricultural wages and living conditions were so poor that they received national attention (Cox 1963; Kerr 1964, 186–202). But labourers contemplating protest were reminded of the deportations following the Swing Riots and the Tolpuddle Martyrs episodes of the 1830s. The obvious response to the hardship was to move to another part of the county, or to leave it and perhaps the country altogether. Emigration has been studied but little work has been done on internal movements within the country, particularly in Dorset. Apart from providing the opportunity to find work, mobility contributed to the exchange of ideas and news, and served as a powerful adhesive force in provincial society, 'integrating towns with the villages of their hinterlands' (Clarke 1979, 58).

This article aims to establish more clearly the extent of mobility in Dorset over the Victorian period. A small sample of Dorset rural parishes and one larger settlement are studied to show the extent of mobility, both geographically and socially. Other questions addressed are how movements into and out of small villages compared with those generated by larger centres, for example the growing town of Weymouth. To what extent did Weymouth offer employment to Dorset people generally? How far did people move and what types of trades or occupations were most likely to move around? Were females or males more mobile? Questions such as these are clearly of interest to those concerned with either the history of particular families or groups or of a particular locality.

While employment on the land declined, growing towns offered new opportunities and in the second half of the 19th century many country folk were attracted to them (Horn 1976, 6). Surplus labour in the south, particularly in Dorset, provided the incentive to emigrate, and some were assisted to do so by members of the gentry or clergy or by overseers of the poor (Bettey 1986, 234). In Dorset the worst areas of depression were to the south and east of Dorchester and records show many instances of farms being sold, and about one in five farmers left the land in the last quarter of the century (Perry and Johnston 1972, 310). Yet relocation from one settlement to another could, as now, be a traumatic experience. Mobility was of course not invented in the 19th century; Peter Clarke points out the 'profound and pervasive effect' physical mobility had on early modern society, and how in previous centuries poor migrants had roamed across the land and the difficulties they caused with regard to housing, public order and food supply (Clarke 1979, 57). Writing about Lincolnshire, Steve Hindle described the widespread hostility to poor migrants in the 16th and 17th centuries (Hindle 1998, 67). Parishes were reluctant to accept poor migrants because of their effect on the Poor Rates, and vagrancy statutes acted as powerful disincentives among poorer folk. However, the New Poor Law made it easier for the distressed to move around, and improving road networks made local travel easier (Redford 1976, 99–105).

Movement studies have focused on a range of different issues, including emigration, internal moves as part of the urbanisation process, marriage, or literacy (Ferentzi-Sheppard 2003; Patten 1973; Perry 1969, 121–41; Mitch 2005, 26–38). Many sources can be used to study internal mobility, including apprenticeship records, settlement certificates, removal papers, baptisms, diaries and court records (Anderson 1997, 104–9).[1] One approach is to record baptisms and burials in a particular settlement over a period of years and assume that those baptised for whom no burial can be found are 'emigrants', and those buried for whom there is no baptism are 'immigrants' (Stapleton 1992, 53). Another method is to count the occurrences of particular names over time in a particular locality. The most sophisticated approach is the longitudinal method using detailed family histories, often documented over several centuries (Pooley and Turnbull 1998). However, this method is less suitable for mainly within-county movements over a generation or two. Censuses only offer snapshots at ten-year intervals, but they reveal movements of individuals and provide a wealth of other details allowing, for example, movements of occupational groups to be traced. They can be augmented with parish registers and other sources, and several such studies have been published (Mills and Mills 1988, 69–75; Mills 1984, 25–30). From 1851 onwards, censuses contain the parish and county of birth, thus allowing movements within a county and from outside it to be deduced. The recent availability of some censuses in searchable form on compact disc provides a powerful research tool and this paper uses Dorset censuses in this form for 1851, 1881 and 1891, and others on microfilm.[2] The statistical analysis will be supplemented by brief histories of some local families illustrating various types of movements. Table 1 shows population details of the five Dorset settlements studied (Page 1908, 266–73).

The Sample Parishes

Many Dorset parishes grew until around 1860 or 1870 and then declined. Moreton is unusual in that its population grew fairly steadily over the century. The parish lies in the valley of the River Frome, about six miles (10km) east of Dorchester, and was mainly owned by James Frampton. The village has a railway station on the London and South Western Railway. Spetisbury is a large parish on the banks of the River Stour, three miles (5km) south-east of Blandford, and is also served by a railway. Milton Abbas is six miles south-west of Blandford and was wholly owned by the Earl of Dorchester, Joseph Damer, Lord Milton, and his descendents until 1852 when it was sold to the Hambro banking family. The fourth parish, Hilton, lies immediately to the north-west of Milton Abbas, and both parishes are remote from the railway. The population of the last three parishes peaked around 1861. All four are relatively isolated rural parishes and were chosen for their different ownership patterns and for their central location in the county. Inter-parish movements would therefore be more likely to be recorded in the Dorset censuses. Seasonal immigration at harvest time in such parishes should not significantly affect the results since the census dates for 1851, 1881 and 1891, were too early.[3] The growing town of Weymouth (including Melcombe Regis) was chosen as it was the largest and fastest growing settlement in the county, and therefore likely to attract a wide range of employment opportunities (Attwooll and West 1995). Table 2 shows the size and ownership of the four smaller parishes.

For the purposes of this research, three types of movement into and out of a settlement are defined. *Stayers* are those who had been born in the parish in which they lived at the time of the census, *joiners* are those who had been born elsewhere and had moved into the parish, and *leavers* had been born in the parish but had moved elsewhere.[4] *Movers* are defined as the average of stayers and joiners. For comparative purposes, the numbers of people moving shown throughout this paper are often expressed as a percentage of the relevant settlement population at census date. Table 3 shows movements in and out of the smaller settlements in 1851 and 1891 (and 1881 for Moreton).

The first conclusion is that very few people had moved into any of the four parishes from outside the county. Consider the average movements of all four parishes, shown in the right-hand two columns of the table. Only seven per cent in 1851 and fourteen per cent in 1891 of parishioners had come from outside the county. On the other hand, within the county, joiners and leavers indicate a high and increasing degree of mobility. Movers averaged 41 per cent in 1851 and 51 per cent in 1891, when more than half of the population of the four parishes had not been born where they lived. Barry Stapleton found broadly similar levels of inward and outward movement in the parish of Odiham in Hampshire, by examining parish registers for the period 1541 to 1820 (Stapleton 1992, 54–5). Similar results have been reported before for other parts of the country (Armstrong 1981, 118). In both years the increase in joiners was due to increasing numbers from outside the county, and a particularly large increase of those from adjoining counties. However, around half the joiners from outside Dorset continued to come from adjacent counties, perhaps reflecting the relative inaccessibility of the region or its lack of attraction for employees. In 1851, leavers from the four parishes to elsewhere in Dorset were 33 per cent, rising to 44 per cent forty years later.

Table 1: Population of the five settlements and the county of Dorset, 1831–1901

Settlement	1831	1841	1851	1861	1871	1881	1891	1901
Hilton	685	730	761	833	800	663	567	502
Milton Abbas	846	833	915	1014	942	956	787	677
Moreton	304	294	227	283	341	309	356	356
Spetisbury	667	654	660	688	673	530	562	457
Weymouth Area	8,852	9,619	10,128	12,038	13,726	14,298	15,399	19,414
Dorset (000s)	159	175	184	189	196	191	195	203

Table 2: Size and ownership of the four small parishes[5]

Parish	Size (acres)	Principal landowner	Acreage owned	Second landowner	Acreage owned
Hilton	3,044	Hon. Dawson Damer	1,400	Francis Byam Bingham	400
Milton Abbas	2,420	Hon. Dawson Damer	2,420	N/a	N/a
Moreton	2,157	James Frampton	2,000	Revd William Buller	31
Spetisbury	2,250	Lord Drax	1,000	William Mackrell	540

Table 3: Mobility among small settlements (percentage of population)[6]

	Hilton		Milton Abbas		Moreton			Spetisbury		All four parishes	
Date	1851	1891	1851	1891	1851	1881	1891	1851	1891	1851	1891
Joiners from outside England	0.1	0.4	0.1	0.7	0.4		0.3	3.2	2.0	0.9	1.3
Joiners from England beyond adjacent counties	0.8	1.1	1.4	5.9	3.5	6.9	11	8.0	6.6	3.1	5.7
Joiners from adjacent counties	0.9	4.9	2.4	6.6	6.2	9.5	7.9	5.6	8.9	3.1	7.0
Joiners from Dorset	59	36	33	41	46	60	61	34	45	42	43
Total joiners	61	42	37	54	56	76	81	51	63	49	57
Stayers	39	58	63	46	44	24	19	49	37	51	43
Leavers to Dorset	34	59	14	39	93	76	63	40	24	33	44
Movers	48	51	26	47	75	76	72	46	44	41	51
Leavers to adjacent counties						22					
Leavers to other English counties						28					
Total leavers to beyond Dorset						50					

Considering the parishes individually, a number of movements do stand out. In 1851, leavers to Dorset varied greatly, from 14 per cent in the case of Milton Abbas to 93 per cent from Moreton. Milton Abbas was clearly a comparatively popular place to live. Moreton had an average level of stayers and joiners in 1851 but a very high level of leavers. In 1891 both joiners and stayers stand out from the average. Ties to the parish of birth were clearly weakening. Among the Spetisbury movements that seem unusual are the high number of joiners from outside England in 1851. These are predominantly catholic nuns and priests who came over from Ireland to work at St Monica's Priory (Taylor 2006, 68–70).

The 1881 nationwide census makes it possible to trace movers who crossed county borders, and the parish of Moreton was chosen as an example. Moretonians steadily became more mobile over the century, travelling to and from more widespread areas of the country. In 1881, for every three people who left Moreton to live elsewhere in Dorset, two left the county altogether, often moving beyond the immediately adjacent counties. Very few went to the emerging industrial areas of Yorkshire, Lancashire, Derby or Cheshire, preferring either London or elsewhere in south-east England. In all, Moreton people were living in 22 counties in 1881. Moreton residents had certainly come from all over Dorset. In 1851 they came from 52 different parishes, increasing to 71 in 1881 and 82 in 1891. However, even in 1891, three-quarters of joiners still came from within the county.

The differences between the adjacent parishes of Hilton and Milton Abbas are particularly striking, possibly a reflection of their forms of ownership. The terms 'open' and 'close' parishes have been defined in a variety of ways, but a key influence is property ownership, and in close parishes like Milton Abbas the owner was often able to restrict settlement by controlling the supply of housing and discouraging or evicting people thought likely to claim poor relief (Banks 1988, 51–73). The control on joiners, in our terminology, may also have had the effect of providing work for those already settled in the parish. Even if additional labour was required, owners of such villages could control rents and limit the number of labourers who gained settlement, thus making it necessary in some cases for workers to walk to work from nearby parishes (Holderness 1972, 127). Those who may have done so do not count as 'movements' in this paper, and in any case would be very hard to trace. The idea of the open and close parish 'system' has been proposed in which those from a close parish migrated to a nearby open one, and the close parish relied for its labour on the open parish, and this may have been the case for Hilton and Milton Abbas. Milton Abbas certainly seems to have been a more attractive place to stay than Hilton, and in 1851 movements both into and out of the 'close' parish were far smaller than for the 'open' neighbour.

By 1891, mobility had increased generally but the margin between joiners and leavers had diminished. The decline in the populations of Milton Abbas, Hilton and Spetisbury by the end of the century was probably the result of declining birth rates or increasing mortality. In Milton Abbas, it appears that the new ownership of the village has encouraged substantially more movement. In Moreton, a mere 19 per cent were stayers in the parish but 81 per cent had moved to the village from elsewhere, a higher level than anywhere else at the time. Leavers had declined from 93 per cent, the previous highest level, to under two-thirds. Moreton appears to have become a more attractive place in which to live and work.

The Parmiters were a farming family living in Moreton who were examples of both joiners and leavers. Edward came from Ludgershall, Wiltshire, and married Lucy from Kimmeridge in Dorset. They had at least three sons and four daughters between 1816 and 1833, one in the nearby parish of West Lulworth. In 1841 the family of seven were in Moreton and Edward had

became an overseer of the poor (D/FRA/R17). Ten years later Edward and Lucy were living in Moreton with two daughters. None of the other children are to be found in Dorset. No more Moreton-born Parmiters appear in the parish census from 1871 to 1901, but the Moreton registers show that their four children chose to be married where they had been brought up (MIC/R/1559). In 1842, daughter Mary, born in Moreton, was married to another Parmiter, Samuel, a tradesman and farmer's son from Southampton. Nine years later daughter Edna married a widower and draper from Wareham. Her father was described as a yeoman and his as a brewer and they both signed the registers. A year later a third marriage took place. This time, son Thomas Parmiter, a yeoman from Moreton, married another Morton farmer's daughter, Sophia Henrietta Forss, whose family had been in the village many years. Both fathers were yeomen. Daughter Rebecca made an equally good marriage in 1856 when she married Charles Hudson, a land agent from Devon. Two years later Eliza Parmiter married a yeoman, also from Southampton. Parents Edward and Lucy were both buried in Moreton, and the burial of second son Thomas in 1863 brought their association with the village to an end. No more Parmiters are to be found in Moreton up to 1901.

Occupations

What kind of occupations were most mobile? Occupations were grouped in four categories. Manual workers include labourers or servants, semi-skilled trades include such trades as buttoners or carriers, and skilled workers include those requiring a formal apprenticeship such as carpenters or blacksmiths. Examples of professionals were bailiffs or magistrates. Table 4 analyses Moreton leavers and joiners according to their occupations in 1851, listing separately those who moved less than, and more than, the mean distance of 11km. Straight-line distances were used to approximate to actual distances moved, an approach also adopted by Pooley and Turnbull (Pooley and Turnbull 1998, 64). In the present research, distances were measured from modern Ordnance Survey Landranger maps nos 183 (Yeovil and Frome), 194 (Dorchester and Weymouth) and 195 (Bournemouth, Purbeck and surrounding area). Most manual workers moved only shorter distances. Very few, as might be expected, moved into the county and none came from outside the country. On the other hand, semi-skilled and skilled workers moved further afield. They had to do so since, in the second half of the century, cheaper factory-made goods undermined rural industries and many rural trades began to disappear (Horn 1976, 7). There were too few professionals to determine a clear pattern, but it would be expected that they were even more mobile geographically. This suggests that, scarce though agricultural work was, labourers were unwilling or unable to move far to find it, or, more likely, that the scarcity of work was widespread. On the other hand skilled or semi-skilled workers had to move further for work, either to a town or larger village. Since there are few large towns in the county, they would have to move further than agricultural workers. We may test this hypothesis by comparing the distances moved by groups of agricultural labourers and skilled workers in 1851 (Table 4).

The two sets of data were tested using appropriate non-parametric methods, and the results strongly supported the hypothesis that skilled workers moved further than labourers (Janausch and Hardy 1991, 119).[7] The result does not, of course, show why skilled workers moved further, although we may speculate that they moved to find work. The vast majority of skilled people who left Moreton went to larger villages or towns. This was partly inevitable since the village was one of the smallest in the locality. By the same token, Moreton joiners had usually moved from larger settlements. Out of the thirty-five agricultural labourers who had left Moreton in 1851, all but three moved to larger villages. Of thirty-four skilled workers who left, all moved to larger settlements, half going to the county town of Dorchester or to the growing Weymouth area, both of which offered a far greater variety of trades and occupations (*Post Office Directory* 1859, 610–14 and 672–8). This supports the widespread contention that towns offered strong attractions to country dwellers, particularly those having skilled occupations According to Mingay, 'migration from the countryside continued throughout the 19th century. The larger towns and

Table 4: Distance moved by various occupational groups of Moreton people in 1851

Movement	Distance	Manual	Semi-skilled	Skilled	Professional	Total
Leavers	<11km	33	5	11	3	52
	>11km	19	15	25	1	60
Joiners	<11km	19	3	8	0	30
	>11km	14	3	9	3	29
Movers	<11km	52	8	19	3	82
	>11km	33	18	34	4	89
Total		85	26	53	7	171

Table 5: Mobility of average of four parishes and Weymouth (percentage of population)

	All four parishes		Weymouth	
Date	1851	1891	1851	1891
Joiners from outside England	0.9	1.3	5.2	4.2
Joiners from England beyond adjacent counties	3.1	5.7	8.8	14
Joiners from adjacent counties	3.1	7.0	10	13
Joiners from Dorset	42	43	40	22
Total joiners	49	57	64	53
Stayers	51	43	36	47
Leavers to Dorset	33	44	7.6	24
Movers	41	51	36	39

settlements, with better-paid and more varied occupations, were a powerful attraction to many country dwellers'. He also claims that most who did move into towns did not move far until the second half of the century (Mingay 1977, 19–20).

Weymouth movements are shown in Table 5, with the average of four smaller parishes repeated for ease of comparison. Weymouth stayers were at an average level, but what stands out is the large number of joiners, particularly in 1851 and, at the same time, extremely low levels of leavers. This was an indication of rapid population explosion of the town which continued to be attractive throughout the century. Weymouth drew people from further afield than the small settlements. While over 60 per cent of joiners were from Dorset in 1851, this had reduced to 43 per cent 40 years later, as a result of the town's wider appeal in England. At both censuses, a far higher proportion of joiners came from outside England than was the case for the small parishes. In 1851 Weymouth still enjoyed the boost to its fame given by the visits of George III around half a century earlier. The 464 who joined the town from outside England had a very wide range of occupations including many sailors, ten annuitants, seven gentlemen/women, many children, a bookmaker, draper, carpenters, laundresses and many other trades. In 1851, most residents of Weymouth were born where they lived and the second-most common place of origin was Portland. Two of our four smaller parishes sent appreciable numbers to the larger settlements: eighteen from Moreton in 1851 and ten from Spetisbury in 1891. Half of those who moved from Moreton to Weymouth went there to do skilled or professional jobs or to become servants. The new Weymouth area residents from Milton Abbas were more diverse, including a cook, two housemaids, a GWR shunter, three bricklayers and an upholsterer.

The general tendency for rural people to move to the towns has been noted (Conway 1980, 4), especially to do building and railway jobs (Armstrong 1981). Some settlements had very specific needs, for example naval personnel or builders in the case of Portland, which attracted many from Ireland and from the colonies to the naval base, the army and to the prison. Very few from rural parishes had the required skills. In 1851 there were over 5,000 joiners, 96 per cent of whom were from England. The joiners included many retired people, 127 dressmakers, 100 laundresses, 62 tailors and several lodging-house keepers. By far the most were servants, of whom there were 430.

Males and Females

A number of historians have shown that women had been more mobile than men well before the 19th century (Armstrong 1981; Waller 1983, 26). Table 6 compares the movements for males and females in the smaller four parishes. The results certainly show that Dorset women continued to be more mobile in the mid-19th century. In 1891, however, the situation was more complex. Hilton and Milton Abbas show that women were still more mobile than men, but women had become less likely to move into Moreton and much less likely to leave Spetisbury, for reasons that are unclear. These results contradict other findings, for example of Pooley and Turnbull, who found that between 1850 and 1859, men made slightly more moves than women (Pooley and Turnbull 1998, 59). Also, Friedlander found that for most of the Victorian period men left agricultural districts more readily than women, a finding he attributed

Table 6: Numbers of male and female movers in all four parishes

		1851		1891	
Parish	**Movement**	**Male**	**Female**	**Male**	**Female**
Hilton	Stayers	43	35	60	55
	Joiners	56	65	38	46
	Leavers	28	40	53	66
	Movers	32	40	26	31
Milton Abbas	Stayers	69	56	52	41
	Joiners	32	43	48	59
	Leavers	10	17	34	44
	Movers	20	26	30	38
Moreton	Stayers	48	41	17	22
	Joiners	52	60	83	78
	Leavers	87	92	58	63
	Movers	15	18	26	25
Spetisbury	Stayers	55	44	41	32
	Joiners	43	58	58	69
	Leavers	34	45	45	12
	Movers	23	36	29	23
All parishes	Stayers	56	45	45	40
	Joiners	44	55	54	61
	Leavers	28	38	46	45
	Movers	92	120	110	117

Table 7: Age profiles of Moreton stayers and movers and of the population of Dorset (%)

Age range (yrs)	1851			1891		
	Stayers	Movers	Dorset	Stayers	Movers	Dorset
0–19	54	28.2	46	88.4	38.1	44.1
20–29	14	20.9	15.9	5.8	14.6	15.5
30–39	6.0	15.7	12.0	1.4	19.6	12.1
40–49	7.0	14.5	9.8	0	8.7	9.9
50–59	9.0	9.7	7.3	0	9.8	7.9
60–69	4.0	6.4	5.2	1.4	5.4	6.0
70–79	4.0	3.6	3.0	2.9	2.8	3.5
80–89	2.0	0.9	0.7	0	0.9	0.9
90–99	0	0	0.1	0	0	0.1

to the greater level of underemployment among men than women and low agricultural wages (Friedlander 1992, 303–5). The large number of servants going to Weymouth, most of whom were female, has already been noted.

The age profiles of residents of all four parishes were very similar in 1851 and in 1891, and were close to overall county and national profiles. Table 7 shows the age profiles of Moreton stayers and movers and for Dorset people as a whole (Census Population Tables 1854, 155 and 194–5).

In 1851, the under-nineteen age groups were much less mobile than those in the 20 to 49-year-old groups, a finding also reported before (Mills and Mills 1988, 71; Pooley and Turnbull 1998, 280). This may be partly explained by the presence of a school in the village, funded by squire Frampton, and a resident schoolmistress. The youngest group of children up to the age of four is particularly large in 1891, reflecting the increase in births in the parish during the second half of the century. Increased mobility in the 20 to 49 age groups has been reported before (Mitch 2005, 26–38). However, a fair degree of mobility is evident even among the young or retired, presumably because families moved together.

Other Approaches

One of the other approaches to movement studies mentioned above was also used. In 1841, 60 families were living in Moreton whose surnames were legible, comprising a total of 282 residents. Ten years later, more than half had disappeared, with only 27 families present, and in 1861 the numbers had dropped to 22. Thereafter numbers stabilised at around 12 families and 45 members. These results confirm the high levels of mobility out of the parish found above. Only four names persisted throughout the remainder of the century.

One of these was the Frampton family, who had owned land in Moreton from the 14th century (Shipp and Hodson 1973, 395). They were prime examples of those whose ties of landownership and local responsibility led them to stay in the parish over many generations, and put down deep roots in the county. James Frampton senior was very active in agricultural improvements and his son, also James, was born London in 1769 and succeeded as lord of the manor on his father's death (Fussell 1952, 125–6). James junior later became a magistrate and Colonel commander of the Dorset Yeomanry, owned over five thousand acres of land in the county and married Lady Harriet Strangways, daughter of the Earl of Ilchester. James, their eldest son, was born in 1802 but died in Weymouth aged sixteen and was buried in the family vault in Moreton. Second son William Charlton remained unmarried and was Rector of Moreton from 1842 until his death. James had a third son, Henry, and two daughters. Henry became a Major in the Queen's own regiment of Dorset Yeomanry and lived briefly in the next parish, Affpuddle as a magistrate but moved back into Moreton to become Lord of the manor on his father's death in 1855. He and his wife had a daughter, Louisa Mary in 1834, who married Rupert Pennefather Featherstonhaugh, of Westmead, Ireland, in 1855, and the couple had at least seven more children in Moreton. It was their son, Henry Rupert, who baptised his son Alaric Featherstonhaugh-Frampton, thus continuing the family name and their connection with Moreton to the present day.

Occupational changes can also be tracked over time. Thirty-nine people, whose ages were stated exactly in the Moreton census of 1841, were traced by name and age in the 1851 Dorset census. One who had been a female servant had become a housekeeper, and one previously an agricultural labourer had become a station agent. A servant had gone back to the land as an agricultural labourer. Of those who were shown as students in 1841, eighteen were agricultural labourers in 1851, ten still in Moreton. Five children had become house servants, four having to leave Moreton to do so. Of the six who had achieved semi-skilled jobs or apprenticeships for skilled trades, all had had to find work outside Moreton. One had returned to his birthplace to become

an apprentice blacksmith. Quite often, young men were told stories about the 'good old days' by their grandparents, and some longed to get back to their roots (Kerr 1968, 118). Two-thirds of adult leavers went to parishes where there were others with their surname. The tendency for migrants to rely on a network of family or acquaintances to help them move has been noted before in the literature and many will have received help from relatives (Patten 1973, 46–7). Of the thirty-four who moved to new parishes, the majority moved alone and took a wide range of jobs, including many servants and various semi-skilled, skilled or professional jobs. As general levels of prosperity improved over the century, the nationwide demand for servants increased steadily, from 665,000 in 1831 to 908,000 in 1851 and 1.4m in 1881, ninety per cent of whom were female (Wild 2004, 77). Six families moved, all containing agricultural labourers. The average age of adult leavers was only thirty-three years.

The second half of the century brought renewed problems for agricultural people, one writer claiming that 'the hardy peasantry of bygone times seems to have degenerated into a stagnant mess' (Redford 1976, 97). But nationally, rapid urbanisation increased the demand for food and led to buoyant prices, and in the third quarter of the century, agricultural profits improved and the era of 'high farming' dawned. Landowner and tenant alike benefited from a 'generally deferential and passive workforce' (Wild 2004, 70). But the period of relative prosperity ended abruptly in the 1870s with the farming depression caused by cheap imports (Dunbabin 1963, 68). This lasted well into the 20th century and was marked by rapidly falling prices and great hardship for landowners and tenants alike. Contemporary writers talked of many minor rural industries having 'completely died out', and the depression having 'left its mark on the county's chief industry' (Page 1908, 275). Traditional forms of secondary employment were disappearing too in the wake of mechanisation (Bettey 1987, 43, 63). The railways helped farmers modernise and transformed market towns such as Dorchester and Sherborne. Railways also encouraged farmers to send liquid milk to these market towns, thus killing off small-scale cheese production (Bettey 1986, 238–42). Farmers and landowners had to reduce their workforces and many labourers had to find work elsewhere (Bettey 1974, 58). Railways are reputed to play a crucial role in allowing many to leave rural villages in the second half of the century (Bettey 1987, 88), but seem to have had little effect on overall movements among our settlements.

The Railway

Moreton had a railway station in 1851 one mile from the village. The line went to Dorchester and Wareham and reached the outskirts of the growing town of Poole by 1857. However, even by 1851 only fifteen leavers from Moreton were living in Dorchester and fifteen in Wareham, out of a total of 210. By 1891, only eight were living in Dorchester, three in Wareham and two in Poole, out of 224 leavers. The railway did not reach Spetisbury until 1860 (Taylor 2006, 108), but only eleven Spetisbury people lived in Poole in 1891 out of 125 leavers. Farm labourers were in any case probably unable to enjoy the benefits of rail travel until near the end of the century when wages had risen and fares decreased (Mingay 1977, 11). Although seeming remote, this part of Dorset was well served by carriers throughout the century, thus facilitating movements for the less well-off rural population. As the rail network expanded, long-distance carriers disappeared but short-distance ones prospered. In 1859 there were many carriers in the surrounding market towns of Dorchester, Blandford and Poole, and also in Weymouth. By 1889 these had expanded even more in all these towns and there were two carriers in Milton Abbas and one in Spetisbury (*Post Office Directory* 1859, 584–678; Kelly, 1898, 1172–1332). Carters and carriers are known to have been important for the transportation of labourers and their families (Bagwell 1981, 32–7).

The railway brought opportunities for some. In 1841, Uriah Sansom, an agricultural labourer, was living in Moreton with his wife Sophia and their three children. Uriah had been born in Moreton, and Sophia in the adjacent parish of Owermoigne. They were still in the parish ten years later by which time two of their children had died, but they had had another son and two more daughters. The arrival of the railway in Moreton had allowed Uriah to become a Station Agent in 1850 and later Station Master. Ten years later the Sansoms were still in Moreton with four children. Also living with them were two grandchildren, one born in Marnhull, north Dorset, and the other in Surrey. Tragedy overtook the family when Uriah's eldest son was buried in Moreton in 1863. He had been a guard on the London and South Western Railway, and was recorded as having 'died in Guy's Hospital, from injuries received accidentally while looking out of a railway carriage in motion' (MIC/R/1071). In 1867, Sophia died and Uriah married again, to Harriet, born in Stinsford, a nearby parish. Living with them in 1871 was Uriah's daughter by his first marriage. In 1881, Uriah and Harriet were still in the parish with their new daughter, Sophia. From 1891 onwards there is no trace of the family in Moreton but two Sansoms were living in the parish, both born elsewhere in Dorset. In 1901 yet another Sansom moved into the parish from Tarrant Crawford.

This research shows that, even by mid-century, people were surprisingly mobile, and not just the beleaguered agricultural workers. Women were most mobile and mobility increased as the century progressed. Men, at least until late in the century, found it harder to move than women. This work has supported the idea, first suggested over 120 years ago, that short-distance moves outnumbered longer ones (Ravenstein 1885, 167–237).

The 20 to 50-year-olds were most mobile, and skilled workers most of all. All classes of society were mobile in Victorian Dorset, including labourers, poor or not. Thomas Hardy was probably right in claiming that labourers often had to move because of short-term employment, and annual hiring fairs allowed them to do so (Hardy 1883). Taking place in market towns, these fairs were the means by which strong labourers who were willing to move could find work. Mingay agrees by saying, 'in areas like Dorset, where the farm hands changed masters every year, the tied cottage does not seem to have deterred them' (Mingay 1977, 80). Those first to move were often the more enterprising or the fittest, and while two-way movements could obviously be beneficial, the gradual excess of leavers over joiners among small settlements was an additional cause of village disintegration that continued for many decades. Dorset rural workers, especially men, were not slow to move to the towns, and many did so to become servants, to take apprenticeships or skilled trades. Yet it is probably true that 'the Dorset labourer remained, with the church mouse, a byword for poverty until after the First World War' (Kerr 1968, 248, 25).

Movements could be restricted in close villages such as Milton Abbas. However, Dorset people eventually travelled to all parts of the county and many parts of the country, although to most people the railway seems to have been less important than other forms of transport such as carters and carriers. Immigrants to towns were usually either seeking jobs as servants to the burgeoning middle classes or the urban gentry, or they possessed the skills necessary for a growing town. Some joined the armed services. Although many were prepared to sever links with their home village for the sake of finding work, they often returned to get married, or to take an apprenticeship. At mid-century, within-county mobility levels were comparatively high. In 1851 the national census shows that only 14 per cent of Dorset-born people had left the county and half of them had only moved to an adjacent county (Census Population Tables 1854, 176). The fact that over 40 per cent of residents in our sample parishes were movers implies a loyalty to the county, and a tendency to move around within it rather than leave it. The case studies have shown some of the myriad social and cultural forces at work behind movements.

NOTES

1 This unusual source of such material contains the stories told in courtrooms by the deserted wives of mid-Victorian emigrants.

2 I would like to thank Diana Trenchard for providing excerpts of the nationwide 1881 census CD for Moreton.

3 The census dates were: 6 June 1841, 30 March 1851, 3 April 1881 and 5 April 1891.

4 It is of course quite possible that individuals or families moved more than once between censuses, but it is not possible to track these intermediate movements without more detailed information. The likelihood of movements being missed in this way is least for stayers appearing in the parish in several consecutive censuses, unless we suppose that they moved away from their home parish to another parish, and back again within ten years, and then repeated the process.

5 Information was gathered from the tithe apportionments for the respective parishes, all of which were dated in the early 1840s (with the exception of Milton Abbas, for which none exists): T/HIL, T/MTN and T/SPY.

6 By definition, stayers plus joiners comprise 100 per cent of the population of each parish.

7 The Chi-squared test is a non-parametric test for the difference between two or more sets of categorised data. In this case the null hypothesis is that there is no difference in movement distances between the two groups. The result is highly significant with $p=0.001$, i.e. only in one in 1000 such cases will the observed differences occur by chance. This is very strong support for the hypothesis that skilled workers moved further than agricultural labourers.

BIBLIOGRAPHY

DHC = Dorset History Centre

Primary Sources

DHC: HO 107/278 Moreton census for 1841 on microfilm.
DHC: MIC/R/603 Moreton christenings 1813-1902
DHC: MIC/R/1559 Moreton marriages 1837-1994
DHC: MIC/R/1071 Moreton burials 1813-1993
DHC: T/MTN Moreton tithe map and apportionment
DHC: T/HIL Hilton tithe map and apportionment.
DHC: T/SPY Spetisbury tithe map and apportionment.
DHC: D/FRA/R17: correspondence between James Frampton and others and the Poor Law Commissioners concerning sale of Moreton poorhouse
Somerset and Dorset Family History Society: 1851, 1881 and 1891 Censuses on compact disc for Dorset.

Official Publications and Directories

Census Population Tables – Ages and Conditions of the People, Vol. 1 (HMSO, London, 1854).
Post Office Directory of Hants, Wilts and Dorset (Kelly and Co., London, 1859).
Kelly's Directory of Dorsetshire (Kelly and Co., London, 1898).
Landranger Map no. 183, Yeovil and Frome (Ordnance Survey, Southampton, 1994).
Landranger Map no. 194, Dorchester and Weymouth (Ordnance Survey, Southampton, 1994).
Landranger Map no. 195, Bournemouth, Purbeck and Surrounding Area (Ordnance Survey, Southampton, 1989).

Secondary Sources

Anderson, O., 1997 'Emigration and marriage break-up in mid-Victorian England', *Economic History Review*, New Series **1** (Feb.), 104–9.

Armstrong. W.A., 1981 'The flight from the land', in G.E. Mingay (ed.), *The Victorian Countryside*, Vol. 1. Routledge, London.

Attwooll, M. and West, J., 1995 *Weymouth, An Illustrated History.* Dovecote, new extended edition.

Bagwell, P.S., 1981, 'The Growth of Carriers', in G.E. Mingay (ed.), *The Victorian Countryside*, Vol. 1. Routledge, London.

Banks, S., 1988 'Nineteenth-century scandal or twentieth-century model? A new look at "open" and "close" parishes', *Economic History Review*, Second Series, **41** (1), 51–73.

Bettey, J.H., 1974 *Dorset.* David and Charles, London.

Bettey, J.H., 1986 *Wessex from AD 1000.* Longmans, Essex.

Bettey, J.H., 1987 *Rural Life in Wessex 1500–1900.* Sutton, Gloucester.

Clarke, P., 1979 'Migration in England during the late sixteenth and early eighteenth centuries', *Past and Present* **83**, 57–90.

Conway, D., 1980 'Step-wise migration: towards a clarification of the mechanism', *International Migration Review* **14** (1), 3–14.

Cox, J.S., 1963 The *Peasantry of Dorsetshire 1866.* Reprinted by Toucan, Beaminster.

Dunbabin, J.P.D., 1963 'The "Revolt of the Field": the agricultural labourers' movement in the 1870s', *Past and Present* **26**, 68–97.

Ferentzi-Sheppard, J., 2003 'Migration from West Dorset to Jefferson

County, New York 1830–1860: Was Canada the Gateway to Jefferson?', unpublished MA Dissertation, Bath Spa University.

Friedlander, D., 1992 'Occupational structure, wages, and migration in late nineteenth-century England and Wales', *Economic Development and Cultural Change*, 295–318.

Fussell, G.E., 1952 'Four centuries of farming systems in Dorset', *Proceedings of the Dorset Natural History and Archaeological Society* **73**, 125–6.

Hardy, T., 'The Dorsetshire Labourer', *Longmans Magazine*, July 1883.

Hindle, S., 1998 'Power, poor relief and social relations in Holland Fen, *c.* 1600–1800', *The Historical Journal* **41** (1), 67–96.

Holderness, B.A., 1972 'Open and close parishes in England in the eighteenth and nineteenth centuries', *Agricultural History Review* **20**, 122–39.

Horn, P., 1976 *Labouring Life in the Victorian Countryside*. Gill and Macmillan, Dublin.

Janausch, K.H. and Hardy, K.A., 1991 *Quantitative Methods for Historians*. University of North Carolina, London.

Kerr, B., 1964 'Dorset cottages', *Proceedings of the Dorset Natural History and Archaeological Society* **86**, 186–202.

Kerr, B., 1968 *Bound to the Soil, A Social History of Dorset, 1750–1918*. John Baker, London.

Mills, D. (ed.), 1984 *Victorians on the Move: research in the Census Enumerators Books 1851–1881*. Open University, Milton Keynes.

Mills, D. and Mills, J., 1988 'Rural mobility in the Victorian censuses: experience with a micro-computer program', *Local Historian* **18** (2), 69–75.

Mingay, G.E., 1977 *Rural Life in Victorian England*. Heinemann, London.

Mitch, D., 2005 'Literacy and occupational mobility in rural versus urban Victorian England', *Historical Methods* **38** (1), 26–38.

Page, W. (ed.), 1908 *Victoria History of the County of Dorset*, Vol. 2. Archibald Constable, London.

Patten, J., 1973 *Rural-Urban Migration in Pre-Industrial England*, Research paper No. 6. University of Oxford, Oxford.

Perry, P.J., 1969 'Working-class isolation and mobility in rural Dorset, 1837–1936: a study of marriage distances', *Transactions of the Institute of British Geographers* **46**, 121–41.

Perry, P.J. and Johnston, R.J., 1972 'The temporal and spatial incidence of agricultural depression in Dorset, 1868–1902', *Journal of Interdisciplinary History Vol. 3, No. 2, Economics, Society, and History*, 297–311.

Pooley, C. and Turnbull, J., 1998 *Migration and Mobility in Britain Since the 18th Century*. UCL Press, London.

Ravenstein, E.G., 1885 'The laws of migration', *Journal of the Statistical Society of London* **48** (2), 167–237,

Redford, A., 1976 *Labour Migration in England 1800–1850*. Manchester University Press, Manchester.

Shipp, W. and Hodson, J. (eds) 1973, *Hutchins' History and Antiquities of the County of Dorset*, Vol. 1, 1861. EP publishing and Dorset County Library.

Stapleton, B. (ed.), 1992 *Conflict and Community in Southern England*. Sutton, Stroud.

Taylor, A., 2006 *The Book of Spetisbury, History of a Stour Village*. Halsgrove, Tiverton.

Waller, P.J., 1983 *Town, City and Nation, England 1850–1914*. Clarendon, Oxford.

Wild, T., 2004 *Village England: A Social History of the Countryside*. Tauris, London.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 49–58

Weymouth over the long eighteenth century: urban renaissance, or new leisure town?

JOHN FRIPP

Summary

Much has been written from a purely local perspective about how Weymouth changed over the 18th century. This article places the town's developments in the wider context of English spas and leisure towns, at a time when such towns were becoming increasingly attractive to the growing middle classes. Weymouth's position gave many natural advantages, and its development was influenced by several people from Bath who helped the town become popular, even before the arrival of King George III.

Many of England's towns and cities were transformed over the course of the long 18th century. Peter Borsay has coined the expression 'urban renaissance' to describe the physical changes in towns and the cultural transformation which accompanied them. The main features of the urban renaissance in larger towns and cities are agreed (Borsay 1989, 1–11). However, considerable debate continues about the extent to which small towns were involved. This paper is intended to contribute to this debate by describing how and why Weymouth was transformed from a small, run-down port to one of the foremost seaside resorts of the early 19th century. As we shall see, the town's revival in fortunes was not primarily due to the patronage of King George III. The King's visits provided the ultimate opportunity for social emulation, an important ingredient of the urban renaissance, and he therefore greatly boosted visitor numbers, but the King chose Weymouth because of its undoubted attractions as a seaside resort and because it was already very appealing to 'polite society', a term coined by Paul Langford to describe the attitudes and behaviour of the growing middle classes (Langford 1992, especially chapter 2). Ralph Allen, the 'Man of Bath', first put Weymouth on the map in 1750, but even by then the town already possessed its own special attractions. Subsequently the Corporation encouraged private investors to capitalise on the town's superb natural setting and improving road communications. In 1780, the Duke of Gloucester started visiting Weymouth and finally the King put his seal of approval on the town around 1800. This study supports the contention that the impact of small resorts could be much greater than their size suggested, and that even some very small towns could be caught up in the urban renaissance (Corfield 1987, 135).

The driving force for the urban renaissance was the increasing economic wealth, first of the élite classes, then increasingly of the middle classes too, whose numbers tripled from 1750 to 1850 (Chalklin 2001, 10–14). The new middle classes included professionals, merchants and traders, many of whom were determined to show their new status by copying the habits of their social superiors. For the first time those outside the circle of the aristocracy had money to spare and leisure time in which to spend it. As a result, within a hundred years of the Restoration, many towns drastically updated the appearance of their buildings and streets, some replacing vernacular with classical architecture (Borsay 1989, 42). Streets were widened, public buildings improved, and a range of new social and cultural facilities built. London led the way but other cities and towns were not far behind, especially the spas, particularly Bath and Scarborough. Spas were an important feature of urban growth and seaside resorts copied their physical features (Hembry 1990, 312).

In parallel with these developments were new social attitudes and cultural values that helped to change the pattern of consumer demand, harness energies and resources, and generate new industrial processes and products, the demand for which was no longer confined to the capital city (Ellis 2001, 2). The new leisured society fuelled the growth in services, professions and luxury trades. They required more cerebral and enlightened pastimes than the common people, and coffee houses, theatres, reading rooms, libraries, assembly rooms and walks became part of what the new élite expected (Borsay 1989, 289). Outdoor walks were particularly important, as Georgians took their pleasures and business in the open air much more than at the present (Porter 1991, 226). McInnes has argued that the most important of the leisure facilities were the assemblies; rooms set aside for meetings, dancing and, above all, social intercourse (McInnes 1988, 65). Often, sets of rules were written to guide the conduct of participants, and Masters of Ceremonies appointed to enforce them, following the example of Beau Nash, of Bath and Tunbridge Wells. The lapse of the Licensing Act in 1695 triggered a sustained growth in publishing, eventually allowing many people to become better informed about the delights of spas and resorts through guidebooks and directories (Golby and Purdue 1999, 33–5).

Weymouth and Melcombe Regis

The Borough of Weymouth and Melcombe Regis was created in 1571 by an Act of Parliament which united the two towns situated either side of the River Wey. This followed many years of dispute between the two boroughs, mainly over harbour profits. Arguments continued over the next century, but trade prospered. The Civil War had a profound impact since opposing forces held either side of the town (Attwooll and West 1995, 39). The port declined after the war, suffering from competition from the nearby port of Poole, which had

emerged unscathed from the war and had acquired the wool staple from Weymouth. However, shipbuilding continued, a new warehouse was built, harbour improvements were carried out, and there was evidence of a continued 'steady flow of traffic in and out of the harbour' (Attwooll and West 1995, 56). In the 17th century the government of the town 'consisted of a mayor, two bailiffs, six discreet burgesses to be aldermen and 24 capital burgesses "of good, faithful and honest demeanour" to form a council' (Weinstock 1953, 12). The Corporation's surviving minutes refer to a wide range of business matters – maintenance of good order, street cleaning, poor relief – and to ship owners, merchants and tradesmen, many of whom employed apprentices. Between 1625 and 1660, some 77 freemen were admitted, thus giving them the right to trade in the town (Weinstock 1953, 15). No wonder Defoe wrote in 1724 that:

> Weymouth is a sweet, clean, agreeable town, considering its low situation, and close to the sea; 'tis well built, and has a great many good substantial merchants in it; who drive a considerable trade, and have a good number of ships belonging to the town. They carry on now, in time of peace, a trade with France; but besides this, they trade also with Portugal, Spain, Newfoundland, and Virginia (Rogers 1971, 210).

Defoe shows that Weymouth had recovered from its earlier decline following the Civil War to become a small but successful mercantile town. However, as Table 1 shows, the town grew only slowly over the rest of the century, probably due to its relative isolation and low surrounding population. Rapid growth only occurred in the early 19th century.

Weymouth was not large on the national scale and in 1801, 94 towns had between 2,500 and 5,000 inhabitants (Corfield 1987, 125–9, 133). However, rather than absolute size, population density relative to the surrounding area, or 'nucleation', was important. In 1801 Poole was the largest town in Dorset, and Weymouth the second largest; however, as Table 1 shows, thirty years later Weymouth had overtaken Poole and nearly five per cent of the population of the county lived there. Nucleation in Dorset was still small, for example the largest eight Dorset towns housed twenty-one per cent of the county population in 1801 and this only rose to twenty-three per cent thirty years later. By the standards of much of the country, Dorset has never been urbanised. A town's sphere of influence also matters, and its type of political organisation. By definition, towns contain a variety of trades and occupations and have an essentially non-agrarian economic basis. We shall see later how the variety of trades in Weymouth developed over the last half of the 18th century and how the town came to acquire an importance greater than its size alone would indicate. Weymouth was also one of many towns that attracted large numbers of visitors, for example for annual hiring fairs, or in the case of resorts, for seasonal recreation, and these visitors needed to be catered for.

Table 1: Population of Weymouth, Melcombe Regis and Poole[1]

	1673	1760	1801	1831
Weymouth			1,267	2,529
Melcombe Regis			2,350	5,126
Total	1,588–2,268	less than 3,000	3,617	7,655
Poole St James			4,761	6,459
Dorset			114,452	159,385

All watering places had to satisfy many demands, since 'Spa life was London life in another environment' (Pimlott 1947, 44). The main purpose of visiting the spas was not necessarily to drink or bathe in the mineral waters at all, but to enjoy the company and diversions on offer. Spas and seaside resorts became popular because they offered London society refuge from the summer dust of the city, and somewhere to go during the Parliamentary recess. The appalling living conditions in many cities and large towns encouraged those who could afford it to seek refuge during the summer months (Borsay in Clarke 2000, 781). So the second half of the 1700s witnessed an expansion in the holiday industry, supported by many transport improvements, and between 1750 and 1790, at least 39 new spas were created (Hembry 1990, 305–6). However, seaside resorts lagged somewhat behind the spas, even though the resorts were intrinsically healthier places and offered genuine health benefits and a more relaxed, informal atmosphere (Sweet 1999, 23).

Weymouth took the first tentative steps in its transformation from port to a leisure town in the middle of the 18th century by acquiring assembly rooms, probably as part of an inn. Inns were an essential part of the urban renaissance, were often patronised by the gentry, and frequently had meeting rooms (Sweet 1999, 231). The town already possessed some relatively sophisticated retail activity, as the Weymouth and Melcombe minute books show that on 19 September 1733, Rachel and Mary Green were running a glover's shop 'at the foot of the bridge'. In 1748, Richard Tucker, later to become mayor, is known to have been subscribing to a number of balls and assemblies (McIntyre 1973, 314). Weymouth was among the first small towns to have an assembly room; Shepton Mallet and Frome acquired one ten years later, and Margate had assemblies by 1769. Nationally, larger towns had assembly rooms before this date, Bath by1720 (Keeling 2007, 10) and Edinburgh in 1725 (Hembry 1990, 132). Weymouth's 'old' assembly rooms seemed to have 'depended as much on the patronage of the inhabitants as on the visitors'. These were probably De La Motte's Public Rooms, which appear on a map in 1774 (Hutchins 1774, between pages 400 and 401). Funded by subscription for the leisured society, they became common in spa towns. In Weymouth, also in 1748, Richard Prowse was among the earliest to recognize the town's

potential as a resort when he was granted a 21-year lease to erect two wooden bathing huts on the north side of the harbour (WLH: Weymouth and Melcombe Regis Minute Books 30 Sep 1748).

The town did not attempt to mirror the bigger spas or resorts architecturally. A typical cottage in Georgian Weymouth was 'narrow in frontage, with good bow windows, mansard roof and mellow brickwork' (Ricketts 1975, 9). Like most houses in the south, they were built in close-packed rows to achieve high density and to give an illusion of unity (Muthesius 1982, 1–14), and residents seemed perfectly content with houses constructed in the vernacular style (Borsay 1989, 289). Smaller house sizes were possible since few members of the mercantile class resided over their shops (Muthesius 1982, 15). Weymouth records of 1760 also support this by showing that only one property in four was used for both business and domestic purposes (Samways *c.* 1760). The Corporation was a major landowner, although the Duke of Gloucester and Sir William Pulteney were also influential, but the little architectural unity that Georgian Weymouth possessed owed more to the widespread employment of a single resident architect, James Hamilton, than to controls exercised by landowners (Walton 1983, 114).

Ralph Allen

In 1750, Ralph Allen, the 'Man of Bath' bought a house on the Weymouth side of the town for £400, and his arrival was to shape the town's destiny for the next fifty years. Moule stresses the impact Allen had on Weymouth, since he was 'apparently the first to perceive the advantages of the place' (Moule 1883, v). Allen owned 'A House and other houses' in a 'passage up Crateridge hill on the East' (Samways *c.* 1760). He had been advised by his doctor to seek the fresh sea air to help his recurrent headaches, and doubtless the Portland stone quarries, a few miles south of Weymouth, were of professional interest. But what was to draw the Allens to Weymouth year after year was 'the cool sea water, the splendid long beach, the smooth and gradual declivity into the water, the peace and beauty of the spot' (Boyce 1967, 194–5). Whatever the reasons, his contribution in putting the town on the map was great, even though it has not always been fully recognised. Strangely, a book published in 1812 acknowledged his contribution to Weymouth without naming him: 'a gentleman from Bath it must be acknowledged, is to be considered as the individual who first brought it into repute as a watering place' (Ellis 1829, 122). Allen was the first of several Bathonians to influence the development of Weymouth (Girouard 1990, 83). Benjamin Boyce points out that Allen first visited Weymouth in 1750, not in 1763, as is widely reported (Boyce 1967, 194).[3] As a greatly respected and immensely well-connected businessman, Allen had a reputation for high mindedness, which made him the 'darling of the moralists and the friend of an influential group of clerics and politicians, led by William Warburton and William Pitt' (Langford 1992, 106). He also counted Princess Amelia and the Prince of Wales among his large circle of acquaintances. Boyce mentions some of the many prominent people who visited his house in Weymouth between 1750 and 1763, and Table 2 shows just how influential they were (Boyce 1967, 194–282).

It would be hard to imagine a group of people better able to extol the virtues of Allen's summer refuge. Allen was MP for Bath for several years and the fact that Weymouth, unique outside London until 1832, returned

Table 2: Ralph Allen's visitors in Weymouth from 1750 to 1763

Name	Background[2]
George Arbuthnot	Wealthy local merchant
Revd Dr Thomas Balguy	An intellectual Cambridge friend of Hurd's. Friend of Bishop Hoadly. Became archdeacon of Winchester, vicar of Alton and prebend of two dioceses in Lincolnshire
Dr William Cuming	'A bookish Dorchester Physician' (Boyce 1967)
Robert Henley	First Earl of Nottingham, Lord Chancellor, MP for Bath
John Knapton	London bookseller who knew Alexander Pope, church of Scotland minister, who recommended him to Warburton
Revd Richard Hurd	Bishop of Worcester and writer
William Murray	Judge and politician who became Lord Mansfield. Educated in Scotland
Mr Waple	Unknown
William Warburton	Bishop of Gloucester and religious Controversialist. Critic and defender of Pope. Married to Gertrude Tucker, the 'motherless girl' who had lived with Allen
Charles York	Lawyer who became Lord Chancellor
The Duke of York	Prince Edward Augustus, Duke of York and Albany, second son of Frederick Lewis, son of George II. Younger brother of George III. Joined navy as volunteer, Portsmouth, 1758 and in the same year when serving in Commodore Howe's fleet, was blown into Weymouth harbour

no less than four Members of Parliament must also have helped promote the town in London. In 1753, the *Bath Journal* carried an advertisement for the sale of a house in Weymouth 'with fine furnishings, gardens, and a view of the sea – as if the Allens had made Bathonians especially likely to wish to enjoy the charms of their summer haven'. The Allens were no passive observers of seaside life: early in their time at Weymouth they made another contribution to the town's development by having their own bathing machine constructed (De La Motte 1785, 58).

Weymouth's geographical location was both an advantage and a disadvantage. The bay faces east, and the main streets and buildings, running from north to south, protect the shore and esplanade from the prevailing westerly winds. The sandy beach was gently sloping, free from obstructions and ideal for sea bathing. The town's harbour and pier provided easy access to boats for sea trips. But Weymouth was some 65 miles from Bath and 125 from London (McIntyre 1973, 305). However as the 18th century progressed, the town benefited from improvements in road transport (Clarke 1984, 29). The turnpikes around Weymouth date from 1760 and provided easier transport to Sherborne via Dorchester. The rest of the road to Bath and Bristol appears to have been good (Good 1966, 132). In 1778 the *Western Flying Post* stated that there were three coach services per week between Bath and Weymouth, and the next year this increased to six per week. The *Bath Guide* showed twelve coaches per week in 1817 (McIntyre 1973, 438). In 1813, a light coach was introduced to run from Cheltenham to Weymouth, but it took two days and passengers had to sleep overnight in Bath (Hembry 1990, 256). In 1760 the Exeter Flying Machines travelled from London to Dorchester in a day and a half, but by 1810 the Royal Express coach took only about eighteen hours (Carey 1810, 257, 361). As an indication of comparative growth, Scarborough's weekly passenger links with London grew from 12 to 60 between 1781 and 1809, but over the same period Weymouth's grew even faster, from 12 to 73 (McIntyre 1973, 436). Bath suffered a recession after the financial crash of 1791 (Hembry 1990, 193). By 1815 it was beginning to lose its appeal, partly because its spa facilities were concentrated in the congested area of the city, and partly because the influx of middle-class visitors began to deter the élite. Some of the disaffected probably began to favour Weymouth, thus contributing to the town's success as a resort (Walton 1983, 7). Bath residents could see Weymouth's advantages for sea bathing, and as the bathing season, from June to October, did not clash with the Bath season, this is probably why Bristol also favoured Weymouth (Chalklin 2001, 1965).

Accommodation

As the popularity of spas and resorts increased, the need for accommodation became more acute. For example, in 1760 Cheltenham 'consisted of two or three hundred houses', and sixteen years later a town survey showed only 67 beds available in inns, but stables for 150 horses (Hembry 1990, 183). At Matlock in the middle of the century 'all the company breakfasted, dined and supped together in one room'. In 1785, Tunbridge Wells had about 90 lodging houses, and at Great Malvern in the same year there was only one lodging house with accommodation for fifteen people (Pimlott 1947, 45). Large sums of money were spent on lodging houses and inns, but lodging-house keepers suffered a highly seasonal living and most combined this occupation with others (Hembry 1990, 308). This is the reason why in the 1790s, all but one of Weymouth's 27 lodging-house keepers had second occupations. In the season, rates were 16s per week for Board (wine, tea and sugar excluded), 10s per week for each room, and servants were half price (Barfoot and Wilkes *c.* 1793, 727). Out of season, prices were halved (Attwooll and West 1995, 71). With regular long lets, boarding houses could generate a good income (Walton 1983, 83). In 1800, *Harvey's Improved Weymouth Guide* listed 110 lodging and boarding houses, and the 1801 census showed 659 inhabited houses in Weymouth, indicating that one house in six was offering accommodation to visitors. These rates were similar to Bath, where in fashionable Milsom Street many shops had rooms above them and rates in the season were around 10s 6d per week, servants also being charged half price (*British Directory* 1787, 267–78).[4]

Due to the limited accommodation in resorts, some believed that the vogue for sea bathing would pass, but in 1796 its value was recognised when the Royal Sea Bathing Infirmary was founded at Margate (Pimlott 1947, 57). Aided by support from a growing number of medical men, notably Sir John Floyer and Dr Richard Russell, a fashionable London physician, the early prejudice against sea bathing soon disappeared (Russell 1752). Not to be outdone, local physician Dr J Crane of Dorchester published his *Cursory Observations on Sea Bathing* in 1775 to encourage visitors to take to the Weymouth waters.

Following Ralph Allen's visits, the people of Weymouth made increasing efforts to provide for visitors. A list of properties of the 1760s includes around 640 buildings, and the trades and occupations it includes are shown in Table 3. These are by no means entirely the kind of amenities associated with the larger leisure towns, but there were two meeting houses, essential ingredients of the urban renaissance. In addition, apart from those trades uniquely associated with a port, we find a range of food and drink providers, many shops, and a large number of alehouses and inns. Samways shows that one of these, the King's Head Inn, had 'sundry apartments and a large conservatory (Samways *c.* 1760). There was also a skittle ground and a bowling green. Borsay claimed that bowling had been 'one of the most popular of gentlemanly sports under the Stuarts' (Borsay 1989, 173–4). One of the meeting places was a 'large elegant assembly room', next to the coffee house, where in 1769 the 'nobility and gentry may depend upon genteel usage and the best of every kind'.

Table 3: Trades, occupations and activities in Weymouth, 1760[5]

Trade, occupation or activity	Number (and % of total)
Alehouse/cider house	15 (13.8)
Alms house	1 (0.9)
Bake house	5 (4.6)
Boat house	3 (2.8)
Bowling Green	1 (0.9)
Brewhouse	6 (5.5)
Coopers shop	1 (0.9)
Inn	7 (6.4)
Malthouse	11 (10.1)
Millhouse	7 (6.4)
Meeting house	2 (1.8)
Sail loft	1 (0.9)
School Room	1 (0.9)
Shop	28 (25.7)
Skittle ground	1 (0.9)
Slaughter house	5 (4.6)
Smiths shop	2 (1.8)
Timber yard	2 (1.8)
Town Hall	1 (0.9)
Wash House	4 (3.7)
Warehouse	2 (1.8)
Workhouse	3 (2.8)
Total	109

Two other facilities were important for visitors: libraries and theatres. There is no mention of a library in Weymouth until 1785 (De La Motte 1785, 59). However, Weymouth acquired a playhouse around 1773, only four years later than Nottingham and two years before Manchester (Porter 1991, 239). The first edition of Hutchins' *History of Dorset* published in 1774 shows the theatre already in existence (Adams 1967, 303).

By the early 1770s, the town was enjoying its new status. On 23 September 1771, the *Western Flying Post* reported that:

> the season at Weymouth this year has been very full, and a good deal of polite company still continue there. The only want at that delightful seaport, which is the most convenient for sea bathing in any in England, is, genteel accommodation for its numerous visitors. This inconvenience will, however, in a few years be entirely removed; as the new assembly rooms and hotel, which are now roofing in, will be finished next season, and a new row of buildings intended to be erected on each side of them.

In 1772, Andrew Sproule, another Bathonian, invested £6,000 in a new hotel and assembly rooms in Weymouth, and around this time the town also had hot and cold seawater baths (Hembry 1990, 284). The new hotel was funded by 29 subscribers, including nine from Bath, four from Somerset and Gloucestershire, four from London, four from New Sarum, two from Weymouth and one each from Sherborne, Oxford, Ipswich, Surrey, Kent and Norfolk (McIntyre 1973, 385). The modest size of the rooms is shown by comparison with Bath, where the New Assembly Rooms cost its investors £23,000 in 1771 (Hembry 1990, 306). In 1775 the *Western Flying Post* announced that 'the BALL for the Master of ceremonies will be on Friday the 18th instant, at the new Rooms. Tickets to be had at the New and Old Rooms, and at Mr Plomer'. Sensing the need for continued improvements, Weymouth Corporation had not been idle, and in 1776, an Act of Parliament was introduced authorising the collection of rates for 'paving, cleansing, lighting and watching', and for the 'removal of all encroachments, obstructions and annoyances' (WLH: Weymouth Act 340.13: 351.77, 16).

1780 saw another chapter in the town's social elevation. The Duke of Gloucester, George III's younger brother, spent a winter in Weymouth and as a result had a house built a few years later facing the bay (Shipp and Hodson 1873, 467). The houses in Gloucester Row were built during the Kings's first visits to accommodate his entourage and the 'crescent' was completed by his last visit (Attwooll and West 1995, 85). Weymouth continued to prosper and in 1783 the town's popularity as a bathing resort was such that a tax of 2s 6d a year was placed on bathing machines (Page 1980, 255). In 1785 the Corporation minutes first mention a 'walk called the Esplanade'. Rebuilding and improvements continued, and in 1787, £229 11s 7d was spent on the harbour and piers (Moule 1883, 125, 189). In 1792, trustees ordered signs and other road obstructions to be removed and the digging of wells. Five years later permission was given for water to be piped to the town from Melcombe Regis (Weymouth Act 628.1, 19 Jan 1897). Table 4, taken from the *Universal British Directory* at the end of the 18th century, shows that Weymouth had developed a far wider range of amenities than a generation before.

Traditional building and other trades associated with a small port were still present, but a number of luxury trades had appeared too, including watch and clock making, livery stables, booksellers, wine merchants and hairdressers. We gain a picture of a town conscious of the needs of its new visitors, but unwilling to fully abandon its maritime roots. The town certainly possessed all the necessary trades to accomplish the required building work, and all the services expected by its summer visitors.[6] Many residents ran lodging houses or bathing machines in addition to their main occupation. The table shows eight members of the gentry in Weymouth in the 1790s. Three were aldermen, one a customs collector and the others gave no occupation. Adding the four who titled themselves 'Esq.' gives a total of 12, none of whom were in trade. This supports McInnes's finding for Shrewsbury (McInnes 1990, 197).

The Georgian period was one of unparalleled urban reconstruction, leading to good profits for speculators and work for builders, surveyors, craftsmen and merchants of many sorts (Porter 1991, 298). Subscriptions

Table 4: Clergy, lawyers, physics and general traders of Weymouth in the 1790s[7]

Occupation	Number (and percentage of total)	Those running lodging houses and bathing machines
Aldermen	4 (2.5)	
Building trades (joiners, stonemasons, bricklayers, etc.)	11 (6.9)	6, 3
Carrier	1 (0.6)	
Clothing retailers/manufacturers (draper, milliner etc.)	10 (6.3)	3, 0
Education	4 (2.5)	
Food manufacturer/retailer (baker, grocer etc.)	23 (14.4)	5, 0
Gentry	8 (5.0)	
Hospitality, victuallers, brewing, inn and lodging-house keepers etc.)	22 (13.8)	1, 0
Luxury crafts (watch maker, clock maker, etc)	2 (1.3)	
Luxury services (livery stables, bookseller, wine merchant, hairdresser)	14 (8.8)	3, 0
Mariners	9 (5.6)	1, 0
Merchants and traders, dealers, shops, etc.	8 (5.0)	2, 0
Professions (surgeons, apothecaries, attorneys, etc.)	8 (5.0)	
Proprietor of bathing machines	1 (0.6)	1, 1
Public services (tide waiters, customs officers, surveyors etc.)	15 (9.4)	
Ship building (shipwrights, block, rope makers, anchor smiths etc.)	8 (5.0)	2, 0
Traditional crafts (turner, cordwainer, sadler, smith, etc.)	11 (6.9)	3, 0
Total	160	27, 4

Table 5: Occupations of Bath and Weymouth Corporation Members
(Figures in brackets are the number of Corporation members at each date)

Date	Bath	Weymouth
1700	(26) 1 tailor, 1 mercer, 1? clothier, 2 sadlers, 2 vintners, 1 attorney, 4 apothecaries, 14 unidentified.	(17) 3 merchants (timber, coal and wine), 1 corn dealer, 1 ship owner and merchant, 5 master mariners (1 also a merchant), 1 customs officer, 6 unidentified (probably merchants or mariners).
1740	(30) 1 linen draper, 1 woollen draper, 1 upholder, 1 sadler, 6 vintners, 2 maltsters, 1 baker, 3 glasiers, 1 ironmonger or tallow chandler, 1 shopkeeper, 6 apothecaries (1 a 'gent'), 1 postal contractor or quarry owner, 1? attorney, 1 gent, 3 unidentified.	(11) 1 governor of Portland Castle, 3 merchants (1 originally a mariner), 2 brewers, 3 customs officers, 1 tailor, 1 gent.
1815	(30) 1 bookseller, 2 brewers, 1 innkeeper, 7 apothecaries (2 'gents'), 2 physicians, 7 surgeons, 1 chymist and druggist, 1 attorney, 3 bankers, 1 carrier, 1 mail coach proprietor and 3 esquires.	(28) 1 wine merchant, 2 grocers, 1 butcher, 1 cabinet maker, 3 timber merchants, 1 auctioneer, 4 mariners and merchants (2 also ship owners), 3 customs officers, 1 attorney, 2 bankers, 1 army officer, 8 unidentified.

were used to provide new capital and spread the risk to the entrepreneur (Hembry 1990, 304). In 1800, an embankment was built to the esplanade and a request placed for a subscription from those owning land fronting the sea 'at 13s per running foot' (Minute Books, 27 Jan 1800). The Corporation encouraged all these developments, and Table 5 compares the occupations of Weymouth Corporation members with those of Bath. Although fewer in number, Weymouth Corporation members represented a wide cross-section of occupations appropriate to its locality (McIntyre 1973, 438–41).

The Assemblies

On 15 June 1789 came the following confident announcement from the new hotel owner: 'Assembly Rooms and Hotel, Gloucester Row: J. Stacie, greatly obliged by the encouragement received in former seasons, takes the liberty to inform the nobility and gentry etc. that the HOTEL and ROOMS are open for the season' (*Western Flying Post*, 15 Jun 1789). According to Stacie, previously of the Bedford Arms, London, the assembly room was 'lofty, light and spacious, in which upwards of one hundred couples may dance with ease'. The subscriptions were one guinea per ticket and less for 'walking the rooms' (Barfoot and Wilkes *c.* 1795, 725). This compares with subscriptions to Dress Balls in the Bath Upper Assembly Rooms, which were only one guinea for three tickets (*New Bath Directory*, 1791–2). The Weymouth Master of Ceremonies, Mr Plomer, left Bristol Hotwells in 1778 for Weymouth, where he presided until 1783, to be followed by a local man, Thomas Rodber, after a 'smart contest' (Shipp and Hodson 1973, 468). Like Richard Nash of Bath, Plomer

Table 6: Weymouth and Bath rules for the Balls

Weymouth Rules (Plomer)

1. Gentlemen not to appear in the Rooms on Tuesday or Friday evening in boots, or ladies in riding habits.
2. The ball shall begin as soon as possible after 7 o'clock and finish precisely at 11.
3. That gentlemen and ladies who dance down a country dance, shall not quit their place till the dance is finished, unless they mean to dance no more that night.
4. That no lady or gentleman be permitted to dance in coloured gloves.
5. That after a lady has called a dance, and danced it down, her place in the next is at the bottom.
6. That no tea table be carried into the card room.
7. That gentlemen will be pleased to leave their swords at the door.
8. That no dogs be admitted.

Bath Rules (Nash)

1. That a visit of Ceremony at first coming, and another of going away, are all that is expected or desired by ladies of quality and fashion, *except impertinents*.
2. That **Ladies** coming to the ball appoint a time for their footmen coming to wait on them home, to prevent disturbance and inconvenience to themselves and others.
3. That **Gentlemen** of fashion never appearing in a morning before the ladies in gowns and caps, show breeding and respect.
4. That no person take it ill that anyone goes to another's play or breakfast, and not theirs; – *except captious by nature*.
5. That no gentleman give his ticket for the balls to any but gentlewomen. – *NB except he has none of his acquaintance*.
6. That gentlemen crowding before the ladies at the ball, show ill manners; and that none do so for the future; – *except such as respect nobody but themselves*.
7. That no gentleman or lady take ill that another dances before them; – *except such as have no pretence to dance at all*.
8. That the elder ladies and children be content with a second bench at the ball, as being past or not come to perfection.
9. That the younger ladies take notice how many eyes observe them. – *NB. This does not extend to the Have-at-alls*.
10. That all whisperers of lies and scandal be taken for their authors.
11. That all repeaters of such lies and scandal be shunned by all company; – except such as have been guilty of the same crime – NB. Several men of no character, old women and young ones of questioned reputation, are great authors of lies in these places, bring of the sect of levelers.

introduced a set of 'Rules for Balls', which are shown in Table 6, with Nash's rules for comparison.

The two sets of rules support the contention put forward by Sweet that seaside resorts were more relaxed than spas. The Weymouth rules were fewer and more down-to earth than those of Bath, for example stressing the hazards to be faced from gentlemen wearing swords when country dancing. The need for Masters of Ceremonies was felt widely and the small spa of Melksham borrowed one in 1818, and Brighton and Ramsgate had one by 1806 (Hembry 1990, 309). In this respect Weymouth took the lead among small resorts.

Occupations

Table 7 compares the occupations of the better-known tradesmen in Weymouth and Bath in the 1790s. Once again, ignoring occupations unique to ports, victualling is the biggest group for both towns, with Weymouth having the larger proportion. Predictably, clothing and retail activities feature much more prominently in the larger town, as befits its fashion-conscious image, and Bath also had more professionals. On the other hand, in proportion to its size, Weymouth

Table 7: Comparison of occupations in Bath and Weymouth in the 1790s[9]

Occupation	Bath (%)	Weymouth and Melcombe Regis (%) *
Building	11.0	14.8
Clothing	18.1	3.9
Customs	0.0	10.2
Crafts: luxury	3.6	3.1
Crafts: other	7.3	3.9
Merchants etc.	0.0	3.1
Professional (medical, legal, clergy, brokers, teachers etc.)	15.7	5.5
Retailers	12.2	7.8
Services, transport and entertainment	9.6	15.6
Shipbuilding and related crafts	0.0	7.0
Victualling	22.4	25.0
Total	99.9	99.9

* The occupational data shown in McIntyre 1973, 420, for Weymouth and Melcombe Regis, were taken from the *Universal British Directory*. However McIntyre's total occupations, and hence her percentages, are wrong. The above percentages have been recalculated on the basis of the true total of individual occupations given in her table.

employed more in the building trades and in services, transport and entertainment. This is an indication that Bath was more self-contained as a Spa than Weymouth was as a resort. Visitors to Weymouth expected to travel around outside the town, partly in order to visit the other élite residents of the county, and partly to enjoy the many delights of the countryside. It is of course essential to bear in mind the limitations of trade directories, but again Table 7 appears to confirm that, although on quite a different scale, Weymouth had the type of occupations associated with a more relaxed, informal resort rather than the more formal and much larger Somerset spa.[8] Weymouth looked after its visitors in its own appropriate way and certainly ensured they could eat, drink, travel and be entertained well.

The 1785 De La Motte *Weymouth Guide* confirms that the town had developed greatly since 1760. Walks and rides to various beauty spots were advertised, and saddle horses were available for the 'benefit and amusement of the invalid'. The *Guide* also listed the homes of nearby nobility and gentry, some in great detail. In 1791 the third edition of the De La Motte *Weymouth Guide* included over thirty pages describing places of interest near Weymouth, including a detailed description and diagrams of Lulworth Castle. Fashion-conscious travellers often visited stately homes, anxious to discover the latest ideas in cabinets, fabrics and wallpaper (Porter 1991, 222). There were boat trips for sightseeing or fishing, in addition to the hot and cold sea water baths (De La Motte 1785, 84). Charges for the hot and cold baths were 3s 6d for Gents before 6 pm and 4s at night. However, the key to success in most seaside resorts was direct access to the sea, and Weymouth, like Scarborough, was 'exceptionally fortunate' in owning the land along the foreshore (Hembry 1990, 191). The horse-drawn bathing machines, 'upwards of thirty in number', were fully employed in the summer. Charges were 1s for gentleman, or 1s 6d with a guide. An umbrella machine cost 6d more (De La Motte 1785, 82). Transportation around the town itself was not neglected. Chairman cost 1s from any part of the town to the assembly rooms, and a trip over the harbour cost 1s 6d. Waiting cost 1s 6d for the first hour and 1s per hour thereafter and a 'short trip' cost 6d (Attwooll and West 1995, 65). Visitors were not cut off from the outside world during their stay: post coaches arrived in Weymouth daily from London and Exeter, and went three times per week to Bath and Bristol (De La Motte 1791, 76–7).

The Royal Visits

The town received the ultimate accolade when George III visited Weymouth fourteen times between 1789 and 1805 for the sake of his health (Chedzoy 2003; Broadley 1907). In 1789 he and some of his household moved to Gloucester Lodge, the home of his brother, the Duke of Gloucester (Hibbert 1998, 304). The King was welcomed with open arms, and as Fanny Burney records, 'the whole town, and Melcombe Regis, and half the county of Dorset, seemed assembled to welcome their majesties'. She observed that 'The King bathes with great success; a machine follows the Royal one into the sea, filled with fiddlers, who play "God save the King," as his Majesty takes the plunge!' The King also made frequent use of the esplanade 'The King, and Queen, and princesses, and their suite, walked out in the evening; an immense crowd attended them – sailors, bargemen, mechanics, countrymen; and all united in so vociferous a volley of "God save the King," that the noise was stunning'. This episode is an excellent example of 'social emulation' at its very highest (Barrett 1904, 192; Borsay 1989, 231). According to some writers, George III and his family often took the mineral waters at Nottington and Radipole while in Weymouth (Cosens 1927, 71; Caesar 1945, 25). Elizabeth Ham, romantically minded daughter of 'respectable' parents who lived in Weymouth, also described the scene: 'No wonder that Weymouth in the delicious summers when George III and the Royal Family paid their annual visits seemed like the Promised Land. Reviews, fireworks, fêtes, and balls were the order of the day'. A number of extremely distant relations used to turn up on her mother's doorstep, without any previous warning, asking to stay so they might join in the celebrations. The King, famous for his common touch, took a liking to her father and 'scarcely a day went by in Weymouth before he took my father by the button to learn all the news' (Gillett 1945, 9–10).

The King loved the Weymouth theatre too, and went there 26 times in the 1789 season alone. It stood on the Esplanade, but in Fanny Burney's opinion 'the side boxes are too small ... 'tis a pretty little theatre but its entertainments are quite in the barn style: a mere medley – songs, dances, imitations – and all very bad' (Barrett 1904, 196). Under the direction of the owner, Mr Richard Hughes, the theatre attracted Sarah Siddons, who appeared there in the part of Rosalind. Also Grimaldi, who married one of Hughes' children, appeared in Weymouth to recite his own verse extolling the virtues of the town (Bowles Barrett 1905, 155). In 1802, theatre-goers paid 4s for a place in one of the boxes, 2s for a place in the pit or 1s in the gallery (Adams 1967, 304). Fanny Burney records that in September 1789, the Royal party made use of the assembly rooms too: 'This evening, the Royals and their train all went again to the rooms to drink their tea' (Barrett 1904, 213). The King also used the opportunity of being in Weymouth to travel widely in the surrounding area. On one occasion he went to Maiden Castle, near Dorchester, for a 'rural fête'. The sports included 'grinning through a horse-collar, jumping in sacks, catching a pig by the tail ... donkey racing ... rolls dipped in treacle suspended by strings ... women racing for undergarments, with other rural sports made Royal for the occasion' (Gillett 1945, 45–6). The King seemed to have particularly enjoyed the combination of the 'polite' and the 'vulgar' attractions.

The town benefited greatly from the influx of visitors. Shops were full, the demand for food, drink and everyday commodities was booming, and luxury goods were on sale everywhere. 'Shells and polished stones from Chesil Beach could be bought, as well as silks, ribbons, laces and trinkets (Attwooll and West 1995, 65). Others took advantage of Weymouth's popularity too: in 1801 a Weymouth clergyman advertised his educational services, including 'Board and Tuition with Sea bathing' (*Times* 6 May 1801). The Corporation continued to look for ways of attracting investors after the King's visits ended. A typical example occurred in 1811 when an indenture was signed allowing James Fripp, a merchant from Bristol, and Charles Bowles, a Weymouth gentleman, to rent a piece of waste land near Gloucester Lodge for five shillings per year, in return for which they took all income arising from property on the land (DHC: D2, Indenture 8 Mar 1811). In 1815, Thomas's *Weymouth Guide* stated:

> the inhabitants by such an influx of money, have been encouraged to rebuild, beautify and greatly enlarge the town: which in little more than twenty years, has undergone a considerable transformation (Attwooll and West 1995, 85).

Repeated visits from the élite attracted many wealthy people to come and live in the resort (Borsay 1989, 312). By 1831, Weymouth, then the largest town in the county, had the highest number of 'pseudo gentry' residents among southern resorts, as Table 8 shows, and far higher than the resorts of Worthing, Bognor or Brighton, all much closer to London. This urban elite class included 'capitalists, bankers, professionals, and other educated men' (Walton 1983, 77).

As Walton admits, the figures may have been distorted by numbers of early visitors, as the 1831 census took place in May, but the smaller resorts included large surrounding rural populations that may have had the opposite effect. By 1831 Weymouth was among those resorts that had both its own resident gentry and visiting gentry.

Centuries of conflict from within and invasions from without had made the inhabitants of Weymouth unusually robust. The long-established Corporation members, 'with all their faults', comprising merchants, tradesmen and others, belonged to the most influential families in the town and were closely in touch with its needs, both as a community and as a resort (McIntyre 1973, 411). Crucially, they had the confidence to seize new opportunities as they arose, or, in typically 'laissez faire' style, to allow others to do so. Perhaps due to its turbulent past, the Corporation was particularly open to change, and were especially likely to develop an entrepreneurial approach to the affairs of the town (Borsay 1990, 783).

From 1750 onwards, Weymouth showed clear evidence of an urban renaissance, albeit on a small scale, and the town certainly attracted attention well beyond its size. Combined with its unsurpassed bathing and many local attractions, Weymouth had acquired a strong reputation as leisure resort by the end of the 18th century. By that time, the town also had almost all of the ingredients for a successful resort: good communications, frequent coach services, modern accommodation, good facilities for recreation and diversion, an efficient postal service (thanks to its 1750 visitor) and, above all, superb bathing (Borsay 1989, 33–4). There is no direct evidence of just one ingredient, an adequate supply of servants; however, judging by the frequent concessions for servants in lodging-house room prices and the number of gentlemen living in the town, particularly in 1831, they must have been common. The seeds of success were sown long before even the Duke of Gloucester arrived in the town in 1789, but Royal patronage undeniably helped greatly in its promotion to a wider audience. By the early 19th century Weymouth showed, by its location, natural advantages and facilities, that it could attract the élite and aspiring middling classes. The town's physical development and range of cultural activities were less sophisticated than those available in bigger, longer-established spas, but its royal supporters accepted this. The town developed those amenities considered necessary by its visitors, who were able to distinguish between a small resort and a larger spa. Those attending the assembly rooms were prepared to pay even more in Weymouth than in Bath itself. The work supports Corfield's contention that small towns could be part of the urban renaissance and become more important than size alone implied. In the case of Weymouth, the distinction between a town that had undergone an urban renaissance and one that had become a leisure resort was merely semantic. Weymouth had achieved both.

Table 8: Elite occupants in resorts, 1831

Resort	Elite occupants as a proportion of male population
Weymouth	9.00
Tenby	8.50
Margate	8.05
Hornsea	7.30
Hastings	6.92
Teignmouth (East and West)	6.86
Sidmouth	6.25
Lyme Regis	5.86
East Budleigh	5.82
Aberywstyth	5.55
Deal	5.40
Broadwater (Worthing)	4.95
South Bersted (Bognor)	4.95
Brighthelmstone (Brighton)	4.90

NOTES

1 Sources: 1673 – Estimated from hearth tax records, McIntyre 1973, 414; 1760 – from Samways, Property, p. 2; 1801 and 1831 – Page, *Victoria History of the County of Dorset*, p. 272.

2 *Dictionary of National Biography*.

3 Boyce claims in footnote 7, p. 194, that a letter from William Warburton in September, 1750 establishes the date of Ralph Allen's first visit in that year.

4 I am indebted to David Keeling for this reference and for the information on Bath room rates and assembly room subscriptions.

5 Samways, Property.

6 The *Universal British Directory*, produced in the 1790s, like all directories, has a number of well-known defects, including the tendency to omit smaller tradesmen, non-professionals and servants. The directory was country-wide and was compiled at various times over the last decade of the 18th century. I have deliberately taken the data as presented by McIntyre for consistency of comparison between the two towns, rather than risk adopting different criteria in compiling the Weymouth data myself.

7 Barfoot, and Wilkes, *Universal British Directory*, 1793–8, 723–8.

8 For a useful description of the advantages and disadvantages of town directories, see Corfield, 1984.

9 Barfoot, and Wilkes, *Universal British Directory*, quoted in McIntyre 1973, 415 and 420.

BIBLIOGRAPHY

Abbreviations

DHC Dorset History Centre, Dorchester
WLH Weymouth Local History Library

Primary Sources

WLH: MIC/R/1212. Weymouth and Melcombe Regis Borough Archives – Minute Books 1700–1800.
DHC: D2: Weymouth D675/T7: Indenture between the Mayor, Aldermen, Burgesses and Commonality of Waymouth and Melcombe Regis, and James Fripp of Bristol, merchant, and Charles Bowles of Waymouth and Melcombe Regis aforesaid (gentleman), March 8, 1811.
DHC. D2: Weymouth 340.13:351.77, 16. An Act for paving, cleansing, lighting and watching the Borough of Weymouth and Melcombe Regis ... and for removing all encroachments, obstructions and annoyances therein, 1776.
DHC. D2: Weymouth 628.1. An Act for Supplying the Borough and Town of Weymouth and Melcombe Regis with water, Jan 19, 1797.

Official Publications and Directories

The Bath Journal
The Times
The British Directory for the year 1787 – Bath Section (Bath, 1787).
Barfoot, P. and Wilkes, J., *Universal British Directory (Dorset)*, 1790–93 (*c.* 1795).
Anon., *New Bath Directory 1791–2* (Bodley, 1792).
1801 Census for Dorset.
1831 Census for Dorset
De La Motte, *The Weymouth Guide*, first edition 1785.
De La Motte, *The Weymouth Guide*, third edition 1791.
Harvey's Improved Weymouth Guide (Virtue, Dorchester, 1800).
Western Flying Post and Sherborne and Yeovil Mercury.

Secondary Sources

Adams, V.J., 1967 'Weymouth Theatricals', *Proceedings of the Dorset Natural History and Archaeological Society* **89**, 302–13.

Arrwooll, M. and West, J., 1995 *Weymouth, An Illustrated History*. Dovecote, new extended edition.

Barrett, C. (ed.), 1904 *Diary and Letters of Madame d'Arblay (1778–1840)*, Vol. 4. Bickers, London.

Borsay, P., 1989 *The English Urban Renaissance: Culture and Society in the Provincial Town 1660–1770*. Clarendon, Oxford.

Borsay, P., 1990 'Debate: the emergence of a leisure town: or an Urban Renaissance?', *Past and Present* **126**, 189–96.

Bowles Barrett, W., 1905 *Somerset and Dorset Notes and Queries* **9**, 155.

Boyce, B., 1967 *The Benevolent Man: A Life of Ralph Allen of Bath*. Harvard University Press, Cambridge, Mass.

Broadley, A.M., 1907 *Royal Weymouth 1789–1805: The Court of George III at Weymouth*, four volumes. Cummin, Exeter.

Caesar, G.J., 1945 *Weymouth in the Days of George III*. Weymouth.

Carey, J., 1810 *Carey's New Itinerary*, fourth edition. London.

Chalklin, C., 2001 *The Rise of the English Town 1650–1850*. Cambridge University Press, Cambridge.

Chedzoy, A., 2003 *Seaside Sovereign*. Dovecote, Wimborne.

Clarke, P. (ed.), 1984 *The Transformation of English Provincial Towns*. Hutchinson, London.

Clarke, P. (ed.), 2000 *Cambridge Urban History of Britain*, Vol II. Cambridge.

Corfield, P.J., 1984 'Giving directions to the town: the early town directories', *Urban History Yearbook*, 22–35.

Corfield, P.J., 1987 'Small towns, large implications: social and cultural roles of small towns in eighteenth-century England and Wales', *British Journal of Eighteenth-Century Studies* **10**, 125–38.

Cosens, E.S.L., 1927 *A Short History of Weymouth*. Weymouth.

Crane, J., *c.* 1785 *Cursory Observations on Sea-Bathing*. Weymouth.

Ellis, G.A., 1829 *History and Antiquities of the Borough and Town of Weymouth and Melcombe Regis*. Benson.

Ellis. J.M., 2001*The Georgian Town, 1680–1840*. Palgave, Basingstoke.

Gillett, E. (ed.), 1945 *Elizabeth Ham by Herself, 1783–1820*. Faber.

Girouard, M., 1990 *The English Town*. Yale University Press, Yale.

Golby, J.W. and Purdue, A.W., 1999 *The Civilisation of the Crowd. Popular Culture in England, 1750–1900*. Batsford, Stroud.

Good, R., 1966 *The Old Roads of Dorset* (second edition). Commin, Bournemouth.

Hembry, P., 1990 *The English Spa 1560–1815: A Social History*. Athlone, London.

Hibbert, C., 1998 *George III: A Personal History*. Basic Books, New York.

Hutchins, J., 1774 *The History and the Antiquities of the County of Dorset*, first edition, Vol. 1. London.

Keeling, P.M., 2007 'Shopping in 18th and 18th century Bath – the upper and lower towns: purely a circumstance of geography?', unpublished MA Dissertation, Bath Spa University.

Langford, P., 1992 *A Polite and Commercial People*. Oxford University Press, Oxford.

McInnes, A., 1988 'The emergence of a leisure town: Shrewsbury 1660–1760', *Past and Present* **120**, 53–87.

McInnes, A., 1990 'Reply', *Past and Present* **126**, 196–202.

McIntyre, S., 1973 'Towns as health and pleasure resorts: Bath, Scarborough and Weymouth, 1700–1815', unpublished DPhil Thesis, University of Oxford.

Moule, H.J., 1883 *Descriptive Catalogue of the Charters, Minute Books and other Documents of the Borough of Weymouth and Melcombe Regis, AD 1252–1800*. Sherren, Weymouth.

Muthesius, S., 1982 *The English Terraced House*. Yale University Press, Yale.

Page, W. (ed.), 1980 *Victoria History of the County of Dorset*, Vol. 2. Archibald Constable, London.

Pimlott, J.A.R., 1947 *The Englishman's Holiday*. Faber and Faber, London.

Porter, R., 1991 *English Society in the 18th Century*. Penguin, London.

Ricketts, E., 1975 *The Buildings of Old Weymouth Part 1, Wyke Regis to the South Harbourside*. Weymouth Civic Society.

Rogers, P. (ed.), 1971 *Defoe, D., A Tour Through the Whole Island of Great Britain*. Penguin, London.

Russel, R., 1752 *A Dissertation on the use of Sea Water in the Diseases of the Glands*. London.

Samways, R., Property relating to Weymouth and Melcombe Regis for the Purpose of Voting *c.* 1760s (undated).

Shipp, W. and Hodson, J. (eds) 1973, *Hutchins' History and Antiquities of the County of Dorset*, Vol. 1, 1861. EP publishing and Dorset County Library.

Sweet, R., 1999 *The English Town 1680–1840*. Pearson, Harlow.

Thomas, W., 1815 *New Weymouth Guide*. Weymouth.

Walton, J.K., 1983 *The English Seaside Resort: A Social History 150–1914*. Leicester University Press, Leicester.

Weinstock, M., 1953 *Studies in Dorset History*. Longmans, Dorchester.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 59–96

An Early Bronze Age Timber Structure, a Saxon Kiln and Saxon and Medieval Occupation at Coppice Street, Shaftesbury, Dorset

TIM CAREW

with contributions from Tony Grey, Charlotte Thompson, Lucy Whittingham, Beth Richardson, Terence Paul Smith, Lynne Keys, Phil Austin, Sylvia Warman, Alan Pipe and Kate Roberts

Summary

The redevelopment of land at Coppice Street, Shaftesbury, Dorset (centred on ST 867 231) by Tesco Stores Ltd, provided the opportunity for archaeological investigations by AOC Archaeology Group of a 2 hectare site 200m to the east of Shaftsbury's historic town centre. Significant Early Bronze Age and Saxon to medieval remains were found.

An Early Bronze Age circular post-hole structure, radiocarbon dated to 1880–1640 BC, is interpreted as a timber circle or related ceremonial monument, but the possibility it was an early roundhouse cannot be dismissed. It consisted of a semi-circle of posts facing south-east, 6.5m across and a square arrangement 2.0m across of two double posts and two single posts in front of it. The structure burnt down before the posts had started to decay, and the evidence implies that this was intentional. Grog-tempered pottery sherds, probably from a Collared Urn, and a plain vessel were recovered, in addition to an assemblage of thirteen scrapers, some having other functions, with some debitage. The artefacts were almost certainly intentionally placed, probably after the fire. The structure was isolated as well as short-lived, with almost no other Early Bronze Age features or artefacts on the site.

A Saxon kiln, complete with the products of its last use left in situ *probably as the firing was incomplete, is important. While possibly earlier or later, it probably dates to the early to mid-9th century: charcoal from fuel wood in the kiln has been radiocarbon dated to AD 660–870, but the later part of this range is most consistent with the currently accepted regional ceramic chronology. The kiln was producing Crockerton-type ware, the fabric being different from those previously described, but closest to type H. All the vessels were jars with simple everted rims and rounded bases, with one exception that had a handle.*

Late Saxon and early medieval remains indicate domestic occupation on the western side of the site, closest to the core of the medieval town and Shaftesbury Abbey. The most intense domestic use was pre-conquest. Shallower occupation features had been lost to truncation, but 49 pits, 24 wells, and some enclosure ditches survived. Sizeable domestic rubbish assemblages were recovered from the pits and wells, and iron-working was taking place nearby. The domestic pottery assemblage, especially the large late Saxon component, is significant. There were agricultural land divisions beyond this that continued after the occupation had ceased.

Introduction

Tesco Stores Ltd commissioned AOC Archaeology to carry out archaeological investigations of an irregular 2 hectare area due for redevelopment at Coppice Street, Shaftesbury, Dorset, that had been the Shaftesbury Cattle Market, playing fields, a car park and some demolished houses (Fig. 1). The scheme consisted of the construction of a new supermarket, with associated car parking, petrol-filling station and a new road junction to allow access, and the relocation and improvement of a football pitch with a stand. An archaeological desk-based assessment had been prepared in 1996 by AC Archaeology for Chelverton Properties on behalf of J. Sainsbury PLC (AC Archaeology 1996). The fieldwork, consisting of an eight-trench evaluation, excavation of a 25m × 25m area around the Early Bronze Age timber structure, and a watching brief, was undertaken by AOC Archaeology between November 2003 and June 2004 (site code CCS 03) (AOC Archaeology 2003a; 2003b; 2003c; 2005; 2006).

Geology and Topography

Shaftesbury lies on a north–south band of Greensands, which are sand and clay beds with a greenish colour. In the Shaftesbury area this forms sufficiently hard beds to be used for building. The underlying solid geology on the site is mapped by the British Geological Survey (BGS) as Lower Cretaceous Upper Greensand and Gault, in particular the Boyne Hollow Chert Member, which consists of up to 15m of glauconitic sand and weakly glauconitic sandstone with cherty and siliceous concretions (BGS 2003).

Boreholes across the site revealed that overlying the Greensand was a varying thickness of sandy clay, commonly with gravel inclusions, below made ground. The made ground was thicker under the demolished buildings in the west of the site (0.90–1.30m) and thinner to the south and east (0.30–0.50m) where the land had been open before the excavations.

Shaftesbury, at around 200m OD, sits on a hill at the west end of an area of downland on the north side of Cranborne Chase. The promontory on which the old part of the town is located projects south-west and overlooks the valley of the River Stour to the west. Behind this, to the north-east, the land rises above the town more gently towards the top of the hill, at 249m OD, 2km to the north. The site itself is at 215–220m OD, on this gently rising ground. The River Stour is 6km away at its closest, and flows southwards along this stretch.

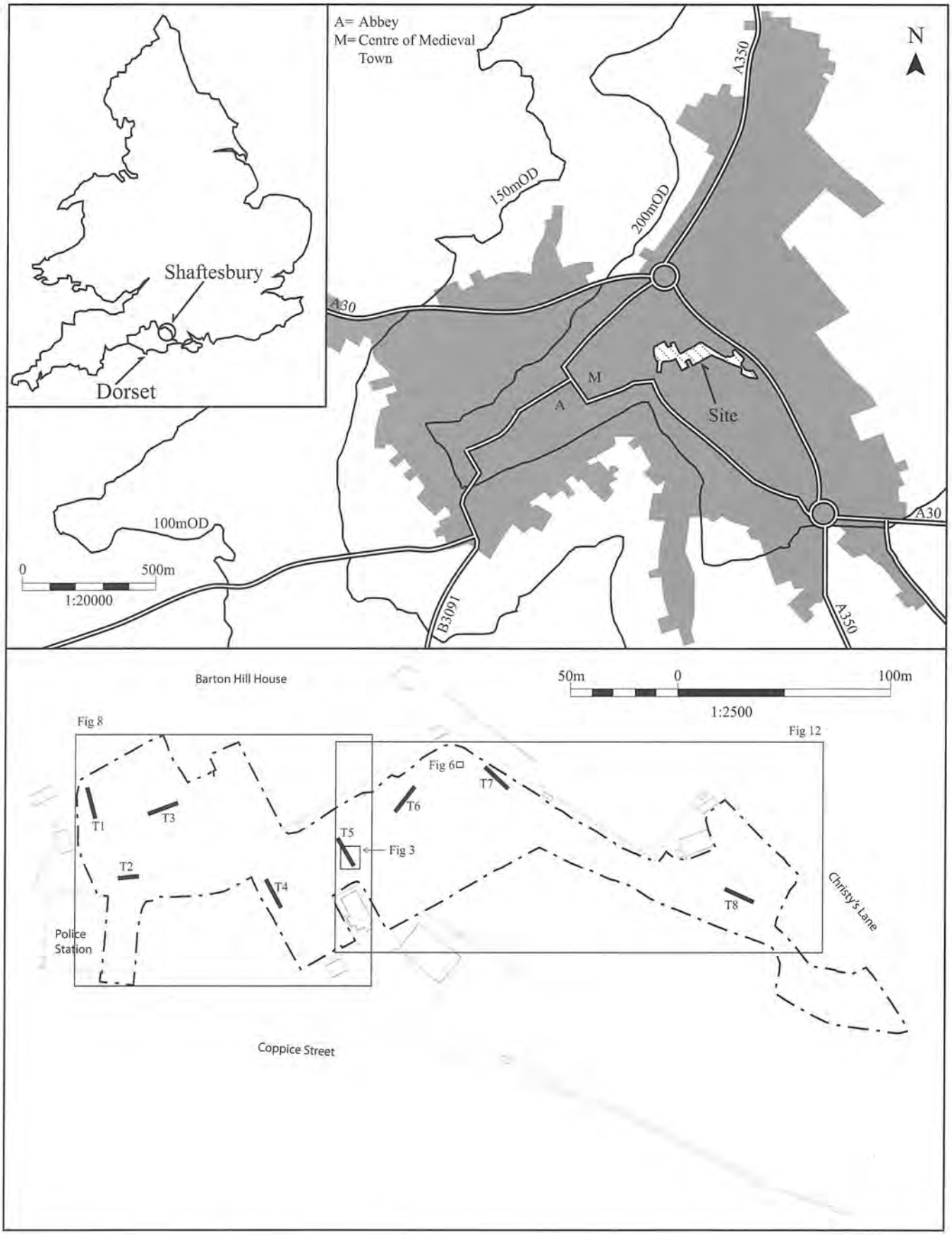


Figure 1: Site location and topography

Archaeological and historical background

At the time of Penn's review of Dorset's historic towns, Shaftesbury had only had a low level of archaeological investigation (Penn 1980, 9). This is, to some extent, still the case even if work driven by the planning process has since been published (e.g. Valentin and Robinson 2000; Nash 2003). No prehistoric remains are recorded in the immediate vicinity of the site, but Cranborne Chase and the Wessex region generally are of international importance for that period, and have well-documented archaeological sequences (e.g. Barrett *et al.* 1991; Gale 2003).

In response to the Danish threat, King Alfred was responsible for the creation in the late 9th century of a burh, a fortified settlement, at Shaftesbury, using its strategic hilltop position. This is listed in the 'Burghal Hidage' a document usually dated to the early 10th century, but the burhs themselves are likely to date from around the AD 880s. Archaeological proof is lacking, but it is assumed that the burh rampart bisected the promontory, with the market area of the present town being outside the original defences (Penn 1980, 89).

Suggestions have been made that the occupation of Shaftesbury may be earlier than this, possibly extending back to the middle Saxon, or even the prehistoric, period (Haslam 1984). The name Shaftesbury comes from 'Sceaft's burg' or 'Sceaften's burg' which implies it was a settlement before the first known record of it (Penn 1980, 84). However, to date there has been no archaeological evidence for this, and the assertion is largely based on the evident defensive potential of the town's location (Keen 1999, 1). Keen (*ibid*) notes that the town also has good east to west communications, and argues that its origins may well be earlier in the 9th century. Penn (1980, 5) believes that before *c.* AD 900 it is unlikely that any of Dorset's later towns were anything more than ecclesiastical centres, or in the case of Dorchester a royal residence.

According to his biographer, Asser, writing in AD 893, King Alfred also founded an abbey at Shaftesbury for nuns, with his daughter, Ethelgiva, as the first abbess, as well as one at Athelney for monks. In the opinion of Keynes (1999), the best reading of the sources implies that, for Shaftesbury Abbey, this was in *c.* AD 890. Charter documents from the 7th century relating to a grant from Cenred to 'abbot' Bectun may indicate that there was a religious house there before Alfred, but the evidence is ambiguous (Murphy 1991).

The abbey is recorded by Asser as being just outside the east gate of the burh. The medieval town seems to have grown up to the east of the abbey outside its gate, possibly as a deliberate creation, which would be consistent with the regular burgage plots in some areas (Penn 1980, 89). The populated area shifted completely at some unknown date, but probably early, with the original burh area being deserted.

In the reign of Athelstan (AD 925–39) there is documentary reference (Athelstan's Grately Decree) to Shaftesbury as a 'port' with two moneyers (*ibid*, 84). Royal favour for the abbey continued with further grants, and Queen Aelfgifu was buried there. The body of King Edward the Martyr, murdered at Corfe, was transferred to Shaftesbury Abbey in AD 979, the tomb becoming a major shrine and attracting pilgrimage, and income, to the abbey. In AD 1001 Aethelred II granted the nuns a refuge against the Danes at Bradford-on-Avon until they could return, suggesting that Shaftesbury was considered unsafe. It is not clear whether this was the case for just the abbey and that part of town to its east, or whether it was also no longer possible to maintain the garrison of the burh. Royal connections were maintained, and King Cnut (AD 1016–35) died there. Shaftesbury Abbey eventually became the wealthiest Benedictine nunnery in England.

The entry in the Domesday Book records the town's name as Sceapterbyrg, and that there were 66 houses in the King's lordship and 111 in that of the abbess. This was down from 104 and 153 houses respectively that were recorded as existing previously, and while this implies it was still large by the standards of the time, the reduction is not explained (*ibid*, 85). It was one of five boroughs in Dorset (plus an uncertain one), and the only one to have as many as three moneyers.

An archaeological excavation within the site in advance of the cattle market development in 1951 was targeted at the supposed site of Barton Manor House (Jervoise 1954). This developed from a medieval Barton or demesne farm of Shaftesbury Abbey and there are descriptions of a complex of buildings in documents dating to soon after the Dissolution. Residual Roman and medieval material was produced from post-medieval deposits and two substantial floors were recorded, probably from a post-medieval barn. A more recent interpretation of the documentary evidence places the manor house a few hundred metres to the north, well outside the site (AC Archaeology 1996). Manors such as 'Bartons' probably had their origins in the Saxon period.

The fortunes of the town through the medieval period were closely related to those of the abbey, with its shrine of St Edward. Records of Jews from Shaftesbury, presumably under the protection of the abbess, indicates commercial activity (Penn 1980, 85). In 1260 a charter was granted to hold a market, with a grant for market days on Mondays and Saturdays being confirmed in 1392. Taxation documents of the mid-14th century show that it was the most populous town in Dorset (*ibid*, 85).

After the Dissolution the economy of the town was affected by the loss of the abbey: in the 18th and 19th centuries the main industries were button making, for which the town was known, and gloving, and the town was a coaching centre, with five turnpikes.

The Archaeological Evidence

Early Bronze Age – timber structure (Figs 3–5)

Near the centre of the site there was the remains of a post-hole structure that has been radiocarbon dated to the Early Bronze Age, 1880 BC–1630 BC (Fig. 2, Table 1). No other contemporary remains were found on the site, other than a few struck flint pieces and sherds of pottery, so this structure appears to have been an isolated feature within the immediate area. The dating of this feature is based on two radiocarbon dates, supported by an assemblage of consistent artefactual evidence.

There is persuasive evidence for the destruction of the structure by burning, the most significant being the abundant charcoal in the post-pipes of its post-holes. The two samples of charcoal analysed show that these posts were oak, and had not time to decay significantly before the fire. The size and intensity of the fire, indicated by discolouration of the subsoil, indicates that far more flammable material fuelled it than would have been provided by the posts themselves.

An assemblage of 28 sherds of grog-tempered Early Bronze Age pottery was recovered from the structure. Grog tempering is characteristic of the Early to Middle Bronze Age of Dorset, and the fabric of this assemblage is similar to that found in Beakers, Collared Urns, and plain vessels. It is unlikely that any Beaker is represented, as the sherds are too thick and the normal Beaker decoration is missing. Twenty-seven pieces of struck flint, 13 of which are retouched, were present in six of the post-holes of the structure. All of the retouched pieces are scrapers, or combination tools with a scraper as well as other functions (Fig. 5). These other functions include awl or piercer, burin and possibly a knife. The technology used to make the diagnostic pieces is relatively sophisticated and characteristic of a Later Neolithic to Early Bronze Age date.

Atmospheric data from Reimer *et al.* (2004) and Bronk Ramsey (2005)

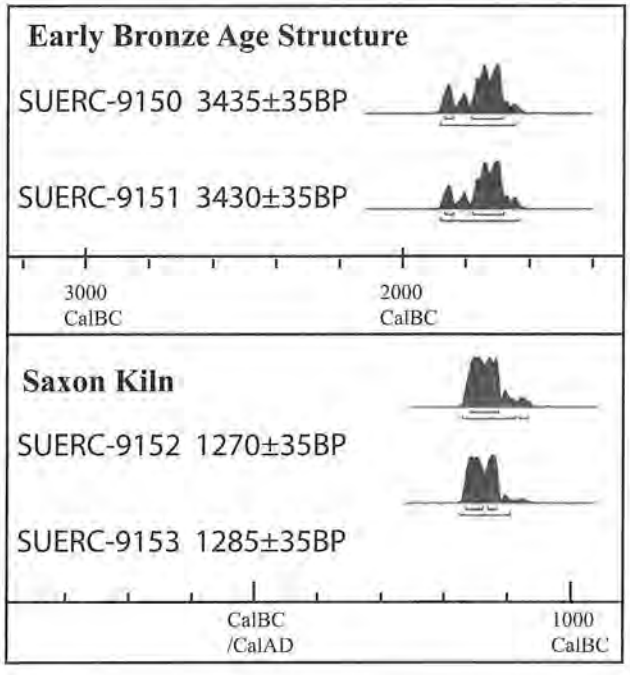


Figure 2: Radiocarbon dates

The pottery and worked flint were all recovered from post-pipes rather than the packing around them, where this distinction was recorded during excavation, with the exception of one small pottery sherd. Many of the post-holes contained a number of generally very small fragments of burnt clay. Although none show stake or wattle impressions it is not impossible that they are daub, although it is very much more probable that they are natural clay or clayey silt that has been burnt in the fire that destroyed the structure.

The plant remains in bulk samples from three of the post-holes in the structure and one associated feature have been analysed. The samples were not very productive but what plant remains were present are consistent with early agricultural subsistence: grains of emmer wheat and barley and associated chaff, and a single oat fragment. A single free-threshing wheat grain, if it is contemporary with the feature and not intrusive or contamination, is unusual in this period but not out of the question. The non-cereal remains were not diagnostic of the environment where the crops were grown, but the weed flora were similar to other sites of this period.

The structure faced slightly to the south of south-east, and was in two main parts. On the north-west side there was a semi-circle of posts, and on the south-east side there was a square arrangement of two double and two single post-holes. In addition to these main elements there were three shallow pits and four stake-holes towards the back of the space enclosed within the semi-circle. Another small shallow pit and three stake-holes were also present in the area of the structure, and seemingly contemporary with it, although their positions do not conform discernibly to the rest of the layout.

The semi-circle was 6.50m in diameter, and the six posts were evenly spaced, being 2.3m apart, the post-pipes themselves being more evenly spaced than the middles of the post-holes. These post-holes were similar in form, sub-circular to oval, with steep to vertical sides and flat to slightly rounded bases, and similar in size, 0.45–0.55m across and 0.45–0.60m deep. In all cases the fills of the post-pipe and the post-packing could be differentiated clearly. The post-pipe fills were a firm to soft dark brown silt, containing frequent flecks and larger fragments of charcoal. The post-packing fills contained abundant packing stones to hold the timbers in place. They were Greensand, the local yellow to green sandstone, and cobbles and pebbles generally accounted for 10–40% of the material. In some of the post-holes these were about 100mm by 50mm by 40mm, the largest being 250mm across, but in others the stones were smaller, about 50mm by 40mm by 30mm. Around the packing stones was a light to mid grey brown sandy silt matrix.

Table 1: Radiocarbon dates

Sample & context	Material	Lab no.	$\delta^{13}C$	Result	Cal BC (OxCal3, 95%)
<3> Fill (9023) of post-hole [9024]	Charcoal	SUERC-9150 (GU-13822)	–24.9‰	3435 ± 35	880 BC–640 BC
<8> Fill (9015) of post-hole [9016]	Charcoal	SUERC-9151 (GU-13823)	–24.2‰	3430 ± 35	1880 BC–1630 BC
<25> Fill (148)/(144) of kiln flue [145]	Charcoal	SUERC-9152 (GU-13824)	–25.4‰	1270 ± 35	660 AD–870 AD
<26> Fill (76) of kiln chamber [77]	Charcoal	SUERC-9153 (GU-13825)	–25.8 ‰	1285 ± 35	650 AD–810 AD

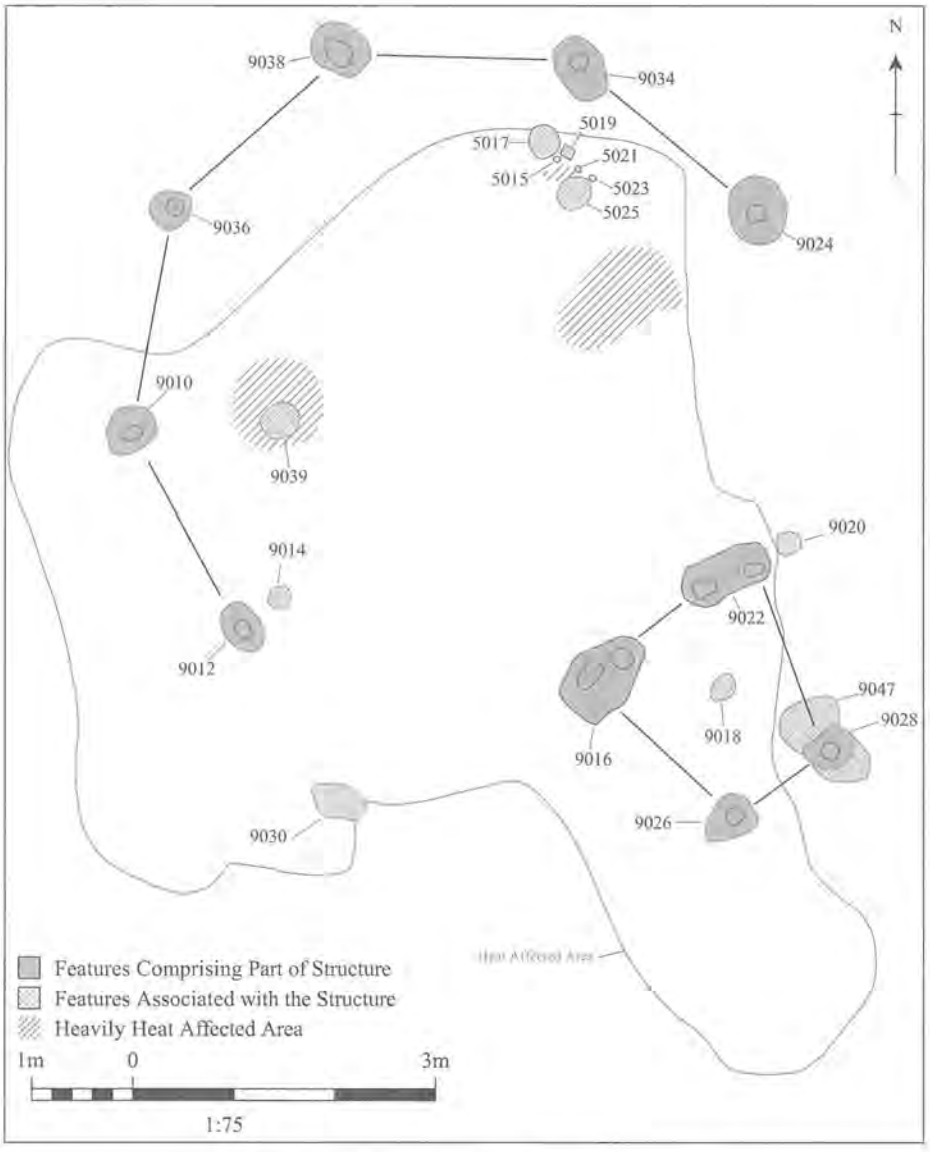


Figure 3: Plan: Early Bronze Age structure

The charcoal-rich post-pipes show that the original posts were all vertical and measured between 0.15 and 0.20m in diameter. The charcoal in the post-pipe fills was undoubtedly produced by the structure burning down while the posts were still *in situ*, with the below-ground wood smouldering in low oxygen conditions. Analysis of samples of the charcoal from two of the post-holes shows that both of those posts were oak. It also demonstrated that the posts burnt before they had decayed significantly, and, as there was no evidence of more than one phase of use, the structure had a short life span, probably less than a couple of decades.

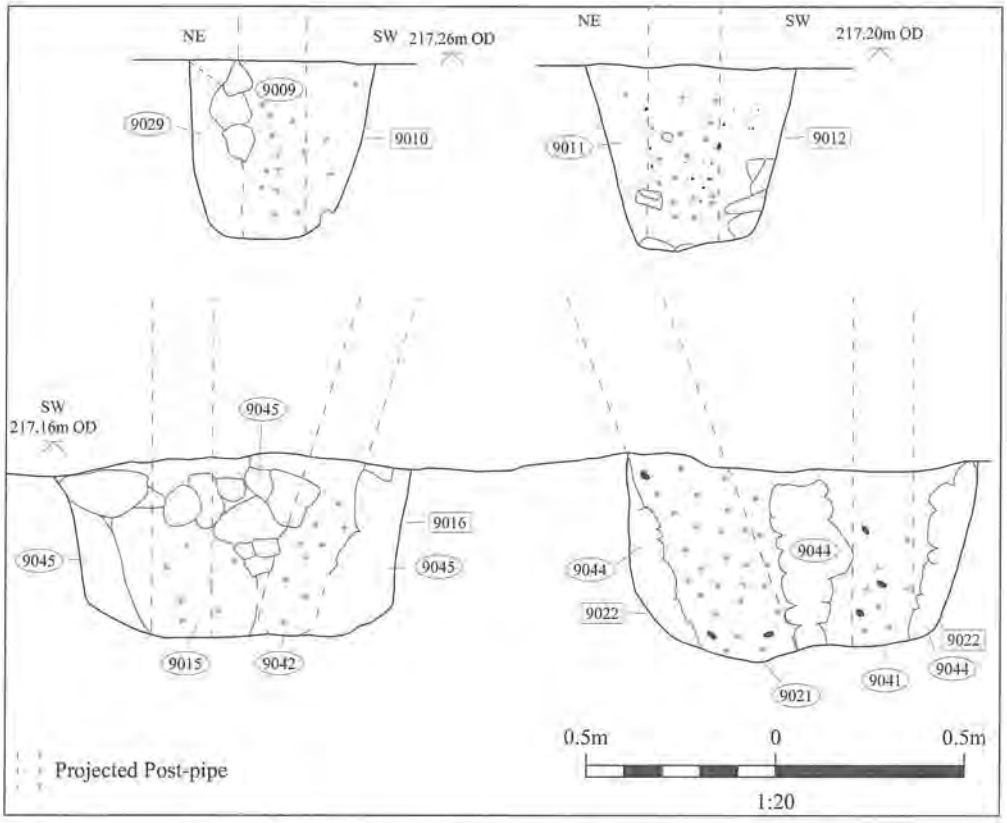
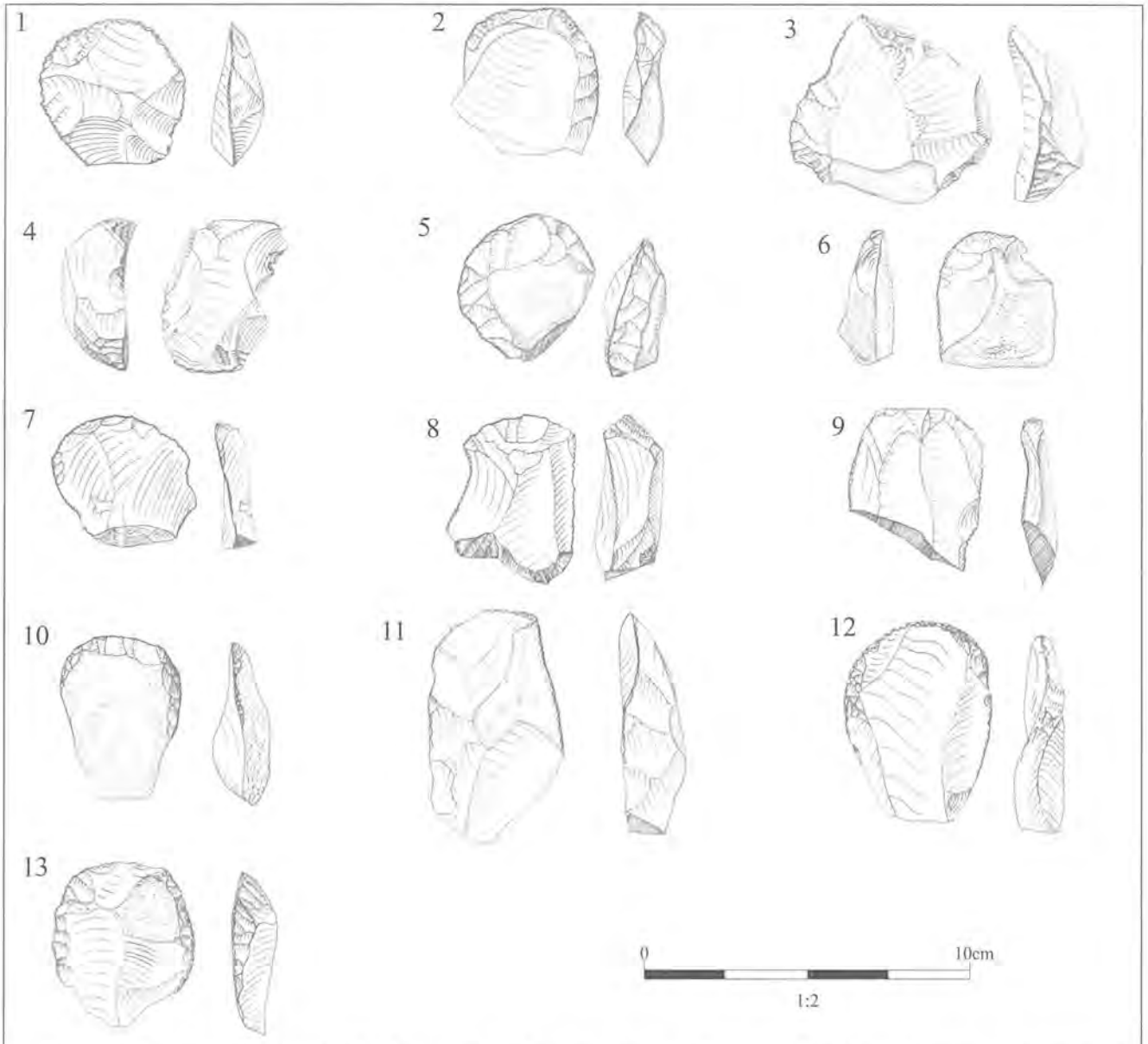


Figure 4: Sections: post-holes in the Early Bronze Age structure

While no pottery was recovered from post-hole [9012] (Fig. 4), the furthest anti-clockwise post-hole, it had three flint scrapers and another five flakes of debitage. The scrapers are a double end scraper (Fig. 5.7), a corticated 'horseshoe' side or end scraper (Fig. 5.5), and a corticated end scraper (Fig. 5.6). The post-hole had a sub-rectangular profile 0.50m deep. Charcoal in sample <2>, from this post-hole, was analysed microscopically, and the vast majority of the pieces were found to be oak, which was almost certainly from the burnt post itself. All the oak came from stem or branch wood, and affinities in the growth ring patterns suggest that the oak came from a single piece of timber. The charcoal was in large pieces, indicating minimal disturbance of the post-hole, and probably came from both heartwood and sapwood. Either the post was formed from a whole single trunk, or, if it was made from a larger trunk converted into a number of posts, it was taken from the outside part of the trunk. Use of a whole trunk of the right size seems the simplest explanation. The timber was in sound condition, with no evidence of fungal hyphae, insect damage, or other forms of biological degradation. There were a few fragments of other hardwood species among the charcoal: hazel, ash, and members of the hawthorn, rowan, pear and apple family. The ring curvature, fragment size, and absence of pith indicate that the minor taxa came from twig or small branch wood. It is conceivable that this charcoal was incorporated into the post-hole at the time the structure was built, following clearance of the area by burning, but it is much more likely that this wood was burnt in the same fire that destroyed the structure: the species and number of minor taxa fragments are similar to those in the other charcoal sample analysed (see below), which was from the post-pipe alone. It was probably fuel used to create the very large and hot bonfire that is indicated by the area of subsoil discolouration.

Post-hole [9010] (Fig. 4), the next one to [9012] clockwise, also had a rich artefact assemblage from the post-pipe fill (9009), relative to its size. The four scraper tools consisted of two 'horseshoe' scrapers (Fig. 5.1 and 5.2), an end scraper (Fig. 5.3), and a notched side or end scraper and possible burin (Fig. 5.4). Four debitage flakes were also recovered from the post-pipe, and some small pieces of burnt clay, one piece of which had a quite badly burned concave face that may have been sitting against a post. These pieces of burnt clay, in both this and a number of the other post-holes, are more likely to be composed of natural clay as opposed to daub. This clay would have been burnt in the fire that destroyed the structure. No cultural material was recovered from the post-packing fill (9029). The post-hole had a sub-rectangular profile 0.50m deep.

The next one around [9036] contained less cultural material, just a single body sherd of grog-tempered pottery. This has a hard fabric with a fingertip impression on the exterior, and possibly part of a second one. The post-hole was 0.60m deep. The other post-hole at the back of the structure [9038] lacked any positively cultural material, but had some small pieces of burnt clay. The post-hole had a steep-sided rounded profile, 0.45m



1 - 'Horseshoe' scraper (Context 9009) 2 - 'Horseshoe' scraper (Context 9009) 3 - Possible end scraper (Context 9009) 4 - Notched side or end scraper and possible burin (Context 9009) 5 - Corticated 'horseshoe' side or end scraper (Context 9011) 6 - Corticated nosed end scraper (Context 9011) 7 - Double end scraper (Context 9011) 8 - Crude end scraper; on thick core fragment; steep retouch (Context 9015) (Context 9009) 9 - Large broken scraper; retouched flake (Context 9021) 10 - End scraper; primary flake (Context 9023) 11 - End scraper; steep retouch (Context 9023) 12 - End scraper and possible knife; corticated (Context 9023) 13 - 'Horseshoe' side or end scraper and possible awl (context 9041)

Figure 5: Flint tools from the Early Bronze Age structure

deep. The next one [9034] also produced no cultural material, but the post-pipe had some small pieces of burnt clay. The post-hole had a steep-sided rounded profile, 0.50m deep.

By contrast, the furthest clockwise in the semi-circle [9024] contained three end scrapers, two debitage flakes, and an abraded sherd of grog-tempered pottery. One of the end scrapers is on a primary flake (Fig. 5.10), one has steep retouch (Fig. 5.11), and one is a corticated piece that is possibly also a knife (Fig. 5.12). One of the debitage flakes is burnt, but as this is the only burning detected on the flint pieces it may well have occurred elsewhere before deposition rather than when the fire destroyed the structure. Charcoal in sample <3> from this post-hole had a radiocarbon age of 3435 ± 35 BP (SUERC-9150, GU-13822), which at 95% probability calibrates to 1880–1640 BC, or between the early 19th century to the later 17th century BC (Table 1). Along with modern and intrusive material, this sample also contained two grains of hulled barley and a wheat or barley grain, small quantities of chaff, a fragment of an oat awn, a hazelnut shell fragment and a variety of non-crop plants.

The square arrangement in front of the semi-circle measured approximately 2m by 2m, although the two single post-holes were closer than this, at 1.2m apart. The inner side of the square arrangement, with both of the double post-holes, was on the projection of the arc of the post-hole semi-circle. The outer posts of the double post-holes were 2.0m apart, while the inner ones were just 1.0m apart. The double post-holes were similar to the semi-circle post-holes, other than being elongated to take two posts. They had been dug as single pits and had then had two posts inserted into each of them, before being packed with stony material in the same way as the single post-holes. The post-pipes were again between 0.15 and 0.20m in diameter and filled with dark brown silt containing abundant charcoal. The outer post-pipes were vertical but the inner ones were angled in towards each other at about 70°. If projected upwards, these meet at a height of about 1m above the top of the post-holes, which means the posts would have met at slightly less than 1m above the contemporaneous ground level.

The one on the east side of the square arrangement [9016] (Fig. 4), contained artefact-rich inner and outer post-pipes within artefact-free, stony post-packing material. Between them the post-pipes had 15 sherds of grog-tempered pottery, some of which were very abraded. One had finger smears on the exterior surface, and some were up to 10mm thick. The outer post-pipe also produced a crude end scraper on a thick core fragment with steep retouch (Fig. 5.8), and the inner one a broken chert flake and a flint spall. The cut for the double post-hole had a sub-rectangular profile, 0.50m deep. Charcoal in sample <8> from the outer post-pipe had a radiocarbon age that is highly consistent with that from post-hole [9024] (above), of 3430 ± 35 BP (SUERC-9151, GU-13823). At 95% probability this calibrates to 1880–1630 BC, again between the early 19th century to the later 17th century BC. Charcoal in sample <9>, taken from the inner post-pipe, was analysed microscopically, and the results were similar to those for post-hole [9012] (above). The vast majority of the pieces were oak from stem or branch wood, very probably a single piece of timber which was the burnt post itself. It was in large pieces, both heartwood and sapwood were present and it was in sound condition. The minor taxa were similar, but without ash and with some bird cherry, and again from twig or small branch wood. The sample came only from the post-pipe fill, so in this case there is direct evidence that the wood of the minor taxa was burnt and deposited at the time the structure burnt down, not when it was built.

The double post-hole on the north side of the square arrangement [9022] (Fig. 4), similarly had a number of artefacts in both the post-pipes, and none in the stony post-packing. The inner post-pipe contained two abraded sherds of grog-tempered pottery, one of which is from the base and lower wall of a possible jar, while the outer one contained another two sherds of grog-tempered pottery, one a tapered rim, and the other a thick pot wall. Each also produced a scraper, that from the inner being a large broken retouched flake (Fig. 5.9), and from the outer came a 'horseshoe' side or end scraper and awl (Fig. 5.13); a small debitage flake was also retrieved from the outer post-pipe. The double post-hole had a sub-rectangular profile, 0.55m deep. Sample <11> from the inner post-pipe contained two indeterminate cereal grains, a piece of barley chaff, and non-crop plants.

The two singe post-holes in the square arrangement were slightly smaller than most of the others in the structure, about 0.45m across and 0.35m deep, with a tapering profile narrowing to the size of the post-pipe, 0.15m. Again stones of Greensand in a silty matrix surrounded post-pipes of slightly sandy silt. Three small abraded sherds of grog-tempered pottery came from the one on the south side of the square arrangement, [9026]. Sample <13> from it contained a grain of hulled barley and two possible grains of emmer wheat, a piece of emmer wheat chaff, some hazelnut shell and non-crop plants.

The post-pipe of the one on the east side [9028] was paler, with less charcoal than the other examples in this structure. Possibly the post was not burned as thoroughly as the others so that there was less charcoal left below ground level, and instead the wood then either rotted away *in situ* or was removed. It was one, admittedly of several, outside of the area where discolouration from burning was seen in the subsoil. Three sherds of grog-tempered pottery came from the post-pipe, two of which, possibly from the same vessel, had an uneven texture on the exterior, perhaps from finger wipes during construction. Another small abraded sherd (2g) came from the packing, the only one specifically recorded as being from any of the packing material, but it is still likely to have been deposited after the destruction of the post. This post-hole cut shallower pits, interpreted as root boles.

Three small rounded pits and four pointed stake-holes within the semi-circle of posts lacked artefacts. All but one of the pits was in a group near the north side of this area, with the singleton in a nearly symmetrical location on the other side of the central axis. The pits were up to 0.25m deep and differed from the structural post-holes in both form and fills.

The area affected by burning, almost matching the footprint of the structure, had a deposit up to 40mm thick with a pinkish to red hue and frequent fragments of charcoal and burnt sandstone. Assuming it was due to one episode, the fire must have been large and hot to have discoloured such a sizeable area. Several areas within the semi-circle of posts, very roughly matching the locations of the pits and stake-holes, were particularly heat affected. The one within the group of these features had a concentration of burnt sandstone.

Four other features were recorded around the structure and appear to be associated with it, even if it is not clear exactly how. Pits [9014] and [9030] were close to

one of the end post-holes of the semi-circle and stake-holes [9018] and [9020] were around the square post arrangement. Pointed stake-hole [9018] produced a 2g body sherd of grog-tempered pottery, a large amount of charcoal, and sample <5> from it had an emmer wheat grain, and some non-crop seeds that may have been intrusive.

Little evidence remained of use of the site between the Early Bronze Age and the Saxon periods, with no features being identified and just a handful of artefacts that were residual in later features or unstratified. These were some probable Late Bronze Age flint-tempered sherds, two Roman sherds and several Roman ceramic building material fragments

Early to Middle Saxon period

Twelve sherds in a single fabric of early to mid-Saxon pottery, made around the 5th to 6th centuries, were present in later features, and may have come from settlement reasonably nearby.

Kiln (Figs 6–8)

Near to the most northerly point of the central area of the site there was a pottery kiln. The chamber contained the products of its final use, which were imperfectly fired and therefore left *in situ* rather than being removed. A nearly circular chamber [77], 0.9–1.0m across, had flues on its western and southern sides [145] and [143], to regulate the air flow through the kiln and supply fuel. Flue [143] was directed to one side of the centre of the chamber as it ran south-west to north-east. It sloped down to the south and had a well-defined shape in comparison to [145], which was slightly irregular. There was a driven stake-hole at the centre of the chamber, which could have been used to support the roof of the kiln while it was being constructed, or to help with the stacking of the vessels. Four other driven stake-holes were found within the flues, again for stakes to support the roof when the clay was still soft. Once the roof was firm they would have served their purpose, and clearly they would not have survived the firing. Just beyond the end of the western flue there was a single driven stake-hole that could have been used to secure bellows.

A very dark sandy silt, containing abundant ash and charcoal, formed the fill of the chamber and the lower fills of both flues. It represents the abandoned contents of the kiln, including the pottery and the remains of fuel, together with silt that accumulated in the space after the kiln was abandoned. Other fills in the flues were lighter

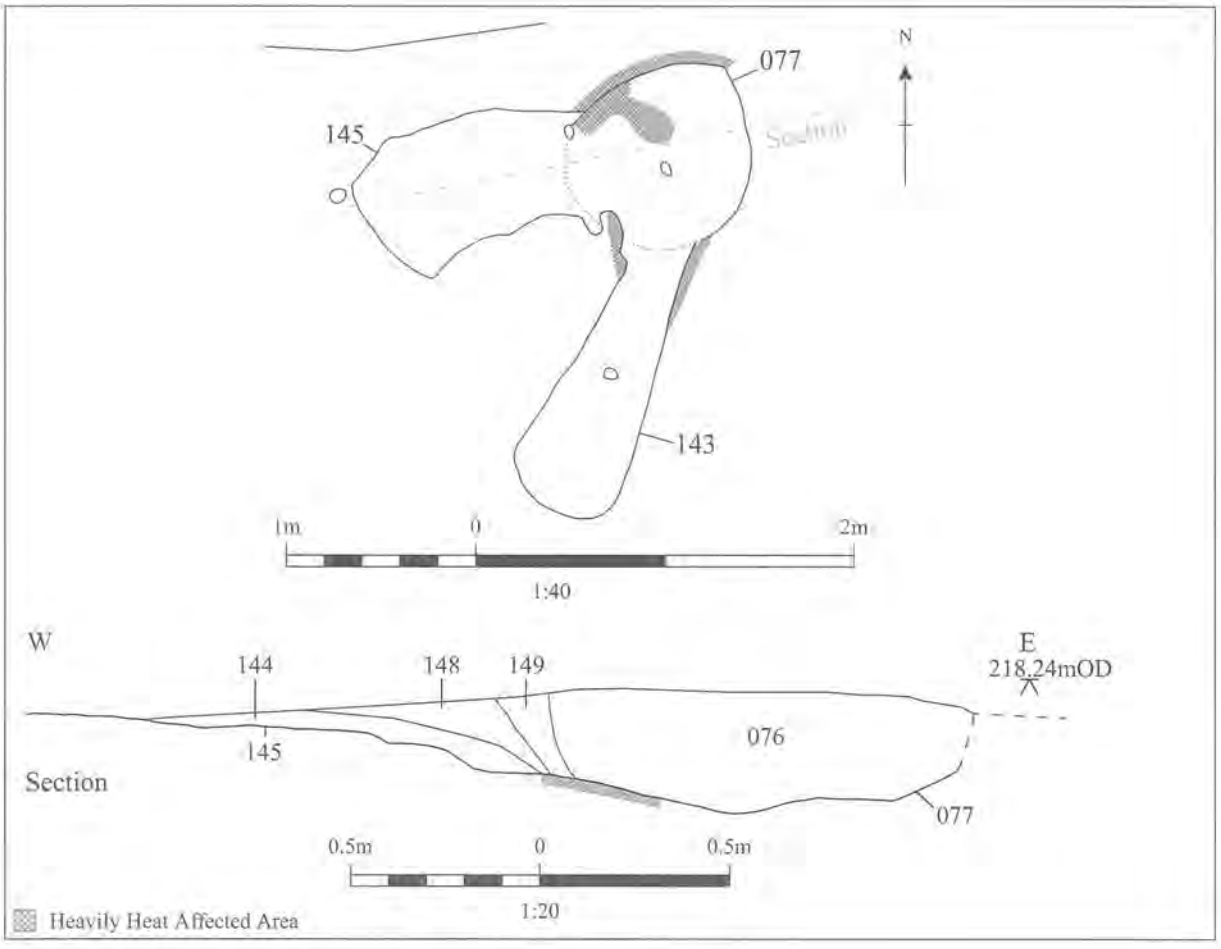


Figure 6: Plan and section: Saxon kiln

Figure 7: The Saxon kiln, looking north, scale 0.5m (25/film7)

in colour and more clay-rich in texture. This material is likely to have come at least in part from the collapsed kiln structure. Some mixing of the material is indicated by the presence of kiln pottery in these upper fills, which may have been caused by the actions of the potters after the firing, dismantling part of the structure to get at the pots before deciding they had no value.

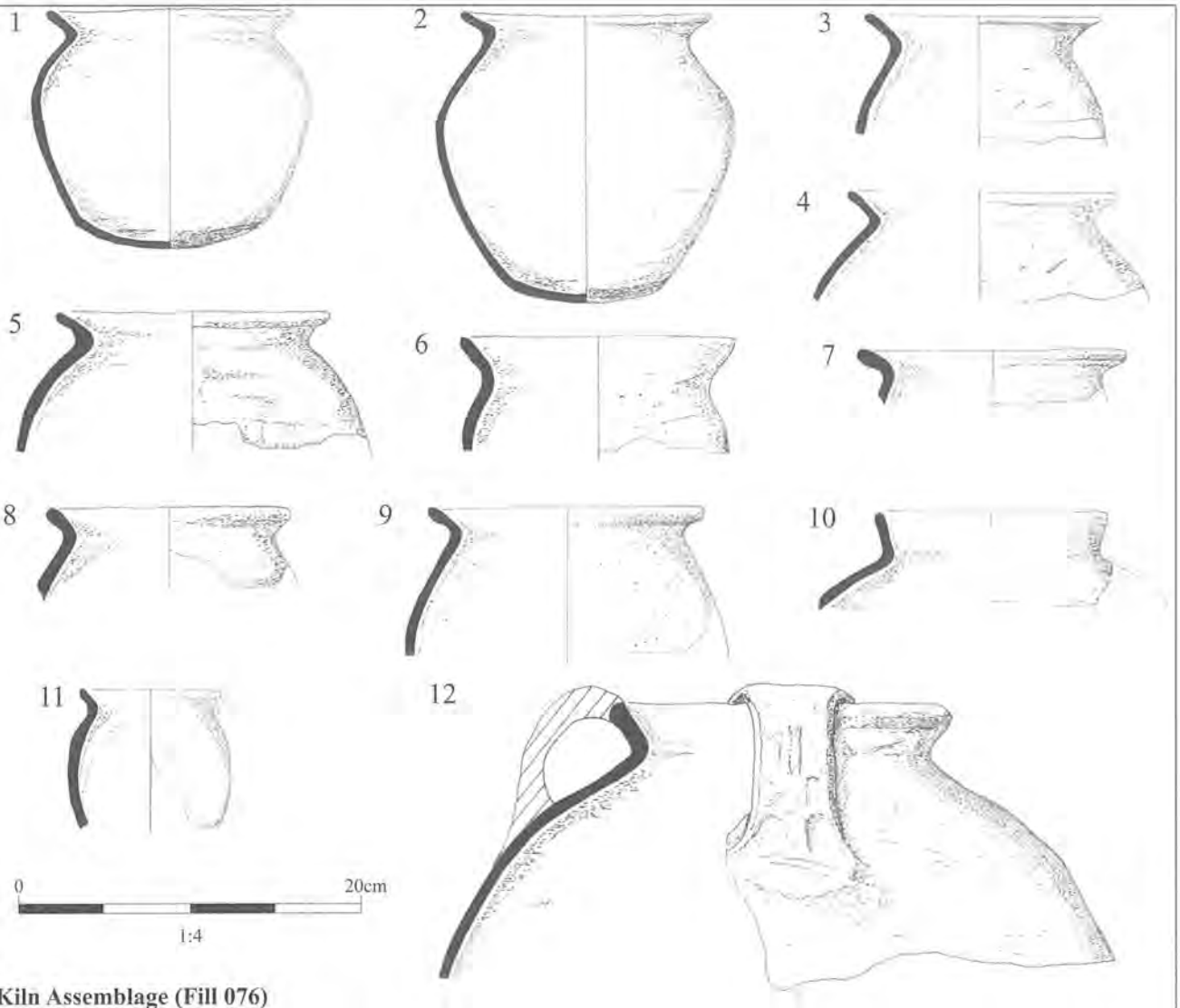
Most of the 1161 sherds were in the central chamber, with some from the flues. All the vessels are Crockerton ware, closest to fabric type H, although an exact match for the fabric is not known, and they are hand built. Crockerton-type wares are found across central and west Wiltshire. All the vessels except one are rounded jars with slightly flattened bases and simple everted rims, with relatively minor variation in vessel form across this group (Fig. 8). Two of these vessels were nearly complete and are representative of the group (Fig. 8.1–2). Two types of rim are present, in almost equal numbers, but they are both everted and this may well be a matter of throwing technique rather than a significant stylistic difference. The exception in vessel form is also a jar, but with a strap handle from the rim to the shoulder (Fig. 8.12). It is likely to have had a matching handle on the opposite side of the rim, unless it was a spouted pitcher with the spout there.

Most of the vessels have a fine quartz-tempered fabric which is quite micaceous, and 17% have a coarser temper of quartz, greensand, and chert. Mostly the vessels are reduced to a pale grey colour, with 11% being fully oxidised. Decoration is restricted to five vessels in the coarse fabric, and consists of vertical incised lines and sometimes broader slashes around the shoulder of the vessel. These have been made with the edge of a knife blade or piece of wood pressed into the surface of the pot.

While a maximum of 108 vessels was present, the real number in the assemblage recovered is likely to have been rather lower, as the uniformity of the vessel form and fabric makes it impracticable to reconstruct the sherds into vessels. Other than the handled jar, the sherds represent an estimated vessel equivalent of 19.7 jars, producing a minimum figure of 20.

Two radiocarbon dates have been obtained from charcoal that came from wood used as fuel, one from the chamber itself, in sample <26>, and the other from the western flue, in sample <25>. The first sample has a radiocarbon age of 1285 ± 35 BP (SUERC-9153, GU-13825), which at 95% probability calibrates to AD 650–810, and the second has a radiocarbon age of 1270 ± 35 BP (SUERC-9152, GU-13824), which at 95% probability calibrates to AD 660–870. These are very consistent results, dating the wood to between the mid 7th century and the mid to late 9th century.

As the wood could have been from mature trees these dates may be too old. However, the indistinguishable results from both samples points more towards younger wood being used, such as produced by coppice, as this would have had a narrow age range. The regional ceramic sequence suggests that the correct date is towards the later end of the radiocarbon range or after it: the pottery would be very sophisticated stylistically for the earlier part of the range. Even a date at the end of the radiocarbon range would extend the date range of the Crockerton industry back in time, and it is primarily a medieval ware. The rounded base of the vessel form is highly unusual for Crockerton-type ware, and supports the early date for it, in comparison to other assemblages. Although there is nothing to preclude a date that is earlier or later, it seems most likely that the date of the kiln



Kiln Assemblage (Fill 076)

1 - Complete hand-built rounded jar; 14 cm height; rounded profile; flattened base; everted (type 1) rim 2 - Complete hand-built rounded jar; 17 cm height; rounded profile; everted (type 1) rim 3 - Complete hand-built rounded jar; 17 cm height; rounded profile; everted (type 1) rim 4 - Hand-built jar rim of wide everted form (type 1) tapering towards the edge 5 - Hand-built jar rim (type 2) in simple everted form, thicker and more rounded profile 6 - Hand-built jar rim (type 2) in simple everted form, thicker and more rounded profile 7 - Coarse tempered hand-built jar rim of simple everted form, with rounded type 2 rim profile 8 - Coarse tempered hand-built jar rim of simple everted form, with rounded type 2 rim profile; the upper edge of the rim is slightly upturned caused by the wiping of the rim in manufacture and may not be a deliberate feature 9 - Coarse tempered hand-built jar rim of simple wide everted type 1 form, which tapers towards the outer edge 10 - Coarse tempered hand-built jar rim, the only example of a more upright rim form, (reminiscent of the Cheddar C wares in the domestic assemblage) 11 - Fine tempered jar; small squat globular form; short out-turned rim 12 - Fine tempered handled jar or possible spouted pitcher; larger size; wide everted rim of rounded type 2 profile; strap handle, possibly one of two, springing from the edge of the rim and attached at a high point on the shoulder

Figure 8: Saxon pottery: the kiln assemblage

is in the late 8th century or the 9th century. This means it could have been before or after the founding of the abbey at Shaftesbury in AD 880 and the likely creation of the burh at a similar time. If before, the potters would have been from a settlement pre-dating these.

The pottery has a soft powdery exterior owing to under-firing, indicating that on this occasion the kiln never reached its final firing temperature. Other imperfections are present, which are normal for kiln assemblages: distortion and warping of rims; cracking near the rims; spalling of external surfaces; and flashing in the colour. As there are no contemporary features on site, there is no evidence whether the production of the kiln pottery was for local consumption or for trade. Very few sherds of Crockerton wares were found in other features, so it would appear that the local production of

this type of pottery died out before the domestic activity on the site.

An east–west gully [138], 0.4m wide and 0.1m deep, to the north of the kiln, was very probably contemporary and associated with it. The positions of the gully and kiln respected each other, separated by 0.3m, and the gully produced two sherds of Crockerton H ware pottery and abundant charcoal, but no other artefacts. The west end was truncated. Whether the kiln and gully were functionally related, or it was decided to locate the kiln on the edge of land bounded by the gully, is uncertain.

Late Saxon and early medieval land use

The late Saxon and early medieval remains, which made up the majority of the archaeological features discovered on the site, form an uninterrupted phase with domestic occupation in the western third of it and agricultural use of the remainder. The domestic pottery assemblage is heavily dominated by wares with pre-conquest dates, especially Cheddar-type C/CC. The proportion of features that are dated to the medieval period is much higher, although still well below half. The level of settlement activity was therefore at its height in the pre-conquest period and subsequently declined. This decline was steep if the abundance of pottery is more representative, and more gradual if the number of features is most representative: taking both into account it can be estimated as significant.

There was no specific boundary dividing the two areas and the occupied area is defined by the distribution of the pits and wells, which finishes abruptly rather than tailing off. This area had suffered the greatest degree of truncation on the site, removing structural and other domestic remains, with the exception of some enclosure ditches.

Taking both periods together, the features representing late Saxon and early medieval domestic occupation of this part of the site consist of 49 pits, 24 wells, ditched enclosures or boundaries and a possible trackway. The few stratigraphic relationships and the relatively coarse chronological resolution of the pottery makes the sequence of the features hard to determine, and the evidence used to distinguish the features between these two periods is imperfect in a number of instances. Around two-thirds, 37 of the pits and 10 of the wells, are assigned to the late Saxon period, with the remaining 12 pits and 14 wells assigned as medieval. In addition to the seven pits without artefactual dating (all assigned to the late Saxon period as next to other late Saxon features), at least six of the pits and wells possibly originated in the late Saxon period but were still open into the medieval period. These six had medieval pottery in only the upper fill. The boundaries represented by the ditches are believed to have originated in the late Saxon period, when the layout of this area was determined, even if the fills in several of the ditches were medieval.

Some indication of the sub-division of the area into properties is given by the clustering of the wells into groups. Those in each cluster were presumably used in succession, even if the chronological resolution is inadequate to confirm this. The groups are mostly between 15m and 35m apart, and if it is assumed that each well may have served a single household this points towards a relatively low density of settlement. This presumably reflects the area being at the extreme edge of the settled area of Shaftesbury. The pits cluster in a similar way although with more in each cluster. Had the wells supplied more than one dwelling each, we might expect a much larger number of pit clusters than well clusters, which is not the case.

The animal bone assemblage, including both periods, has a relatively restricted range of species, being heavily dominated by domestic species. Wet sieving of samples showed that there was a limited contribution to the diet from fish of the herring, eel, and probably dogfish families (elasmobranch). The scarcity of wild animals reflects a low-status community, or the absence of high-status or aristocratic consumption, and contrasts with assemblages from, for example, manorial settlements. The representation of body parts is relatively balanced, without noticeable bias towards either the early stages of butchery or the final stages of consumption, domestic waste. There is also some evidence for stock rearing in the presence of neonatal cattle and sheep. This points to the settlement being at least partially self-sufficient, and consequently that specialisation and division of labour was not fully developed.

The domestic pottery assemblage, including both periods but excluding the pottery from the kiln, is heavily dominated by hand-built limestone-tempered Cheddar C ware, dating to AD 930–1066, accounting for 84% of the sherds. It is possible that this was produced locally, at a site as yet unknown, and it would then fit into a pattern of multiple dispersed production centres in the region between Ilchester and Shaftesbury working within the same ceramic tradition. The unusual degree of variation of colour, from pale grey to bright orange with purple or grey flashes, and the number of vessels with blistered or spalled external surfaces, are reminiscent of kiln material. Even if not actual wasters, these may denotes the use of imperfect vessels that would be less worth distributing than the perfect ones.

Late Saxon period

Domestic occupation area (Fig. 9)

Several ditches marking enclosures in the western part of the site were shallow and fragmentary, forming only part of the original system. The truncation will have been largely responsible for this, although the enclosures need not have been demarcated by ditches for their whole perimeter. Recovery of artefacts from the ditches was poorer than for the pits and wells, partly due to the truncation, partly to their lower concentrations.

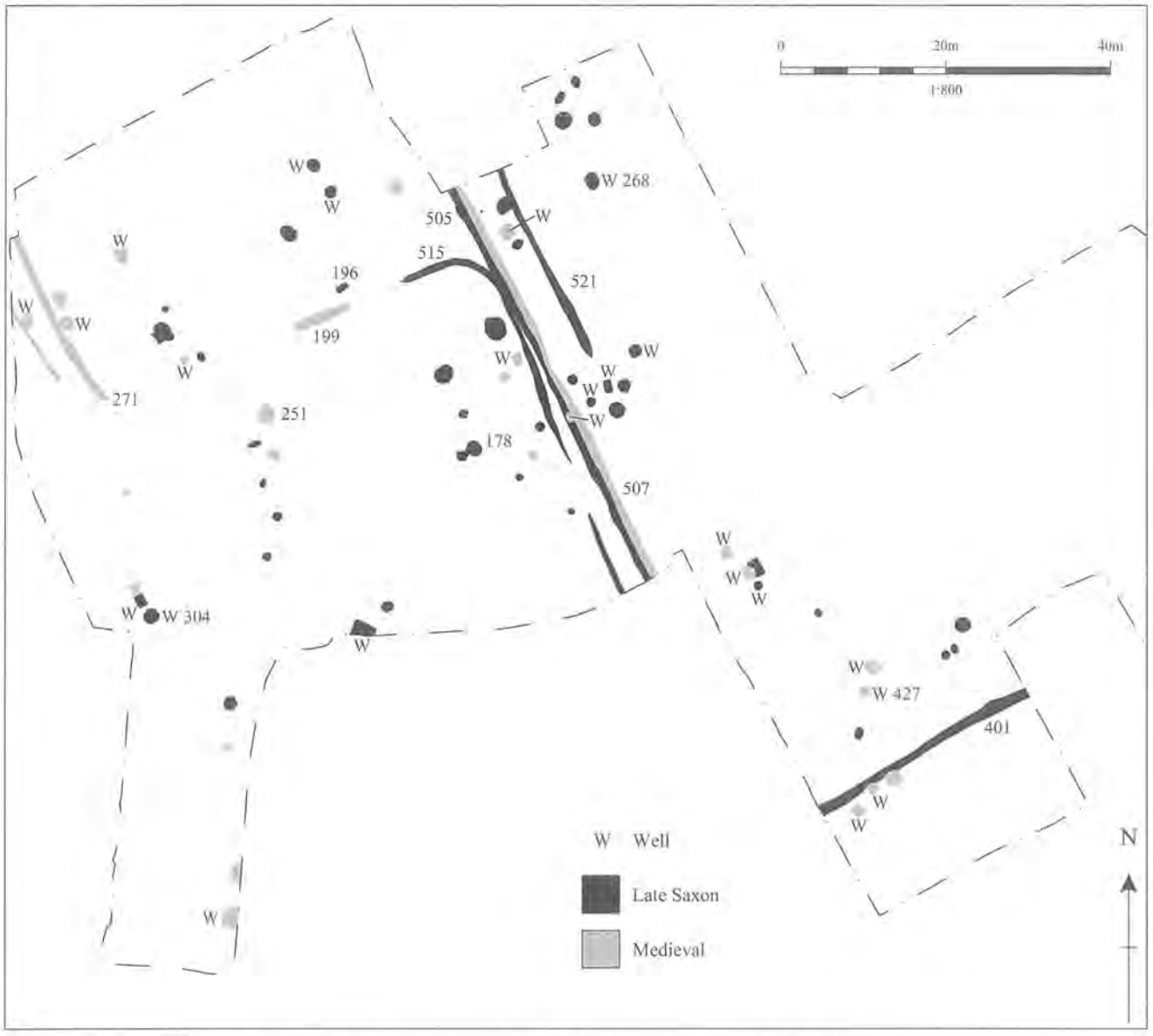


Figure 9: Plan of Saxon and medieval features in the western side of the site

An early boundary is represented by L-shaped ditch [515] with a rounded corner that enclosed a substantial area to its south, and was up to 0.8m wide and 0.2m deep. No artefactual dating evidence was recovered, but it was cut by another late Saxon ditch [505] that replaced it on its north-east side. A 7m length of ditch, 1.3m wide and 0.25m deep, on the line of this boundary [199] further to the south-west, had a sherd of early medieval pottery in its fill, as well as late Saxon sherds. This length could have been maintained into the medieval period or was a later addition to re-establish the boundary. Ditch [505] itself had a medieval recut, so both of the visible sides of this enclosure continued in use as boundaries for a considerable duration, probably to the end of the medieval occupation within the site.

Ditch [505], 0.8m wide and 0.1m deep, had a slightly different orientation from its predecessor, and continued in a straight line to the north rather than turning, so it is not a direct replacement. A second ditch [521] ran parallel to it, a further 5m to the north-east, and was 0.8m and 0.1m deep. Its alignment, together with its continuation to the north, shows that it paired [505] rather than the earlier boundary. A single Cheddar C/CC sherd was recovered from each of the pair. This pair of ditches will have defined the sides of a trackway between them, the surface of which had been lost. This would have been close to the eastern edge of the area of domestic activity, but did not actually define it. It may have only been in use at the high point of occupation: it post-dates some late Saxon features which were in its path or were cut by its ditches, but it also went out of use during the medieval occupation as one medieval well was also in its path and another cut through its flanking ditch. The features pre-dating the trackway were presumably contemporary with the enclosure represented by ditch [515].

Two other ditches, near the west edge of site, had a consistent orientation, and the larger [271], 1.0m wide

and 0.25m deep, terminated on the line of one of the boundaries. It had a medieval fill, but an earlier origin seems probable. It was 50m to the south-west of the parallel ditches, meaning that large areas were enclosed within the subdivisions organising the space in the domestic area of the site. Another ditch [401], near the south edge of the site, was cut by medieval features but had no artefactual dating other than an iron object.

The 37 late Saxon pits identified varied considerably in size, the 11 largest being over 1.8m, and they were circular or sub-circular with a few sub-square exceptions. Intercutting was infrequent even though clustering was the norm. They are typical of pits associated with occupation of an urban or quasi-urban nature. Storage is only a realistic rationale for the ones that were deeper and have steeper sides, and quarrying would not seem to be likely given the geology. One additional isolated pit in character with these was located about 50m to the west of the domestic occupation area.

Many of the larger pits had one or more thin fills sealed by one or occasionally two thick ones filling the remaining space. The lower fills had a modest concentration of cultural material, normally amounting to a few pottery sherds and sometimes some pieces of bone, while the upper ones were highly variable, from almost sterile to having abundant pottery, bone, and occasionally other artefacts. The lower fills are interpreted as natural silting and in some cases slumping, whereas the upper ones were intentional dumping, either to dispose of the material or to fill the hole. Some pits were therefore rich in artefacts and others poor, depending on whether the final use included the disposal of domestic waste, such as breakages, food debris and hearth rakings.

For example, pit [178] (Fig. 10) had a series of seven thin lower fills with little cultural material other than a single fragment of late Saxon cooking pot and five pieces of animal bone from the primary fill. In contrast the upper fill contained 840g of late Saxon pottery from a maximum of 20 vessels, mostly cooking pots in Cheddar C/CC ware, but also with a bowl and a spouted pitcher in that fabric, a cooking pot in Cheddar E ware, and a vessel in Crockerton type fabric. Also present were two vessels (70g) of medieval date, a jar or cooking pot in Laverstock fineware and a cooking pot in a greyware, so its final backfilling did not occur until then. Other domestic waste in this fill consisted of over 1kg of domestic animal bone: horse, cow, sheep or goat, and pig. Two iron objects were present, one of which was unusual and was probably part of a bridle or harness or cart-fitting (Fig. 11.3). The other may have been a handle (Fig. 11.4).

Over two-thirds of the smaller pits had only a single fill. Again the pits varied in the cultural material they contained, with about a third being abundant, a third with few or no finds, and the rest in between. Pit [196] (Fig. 10) was particularly rich, with 3.1kg of late Saxon pottery from up to 68 vessels. Again, most were cooking

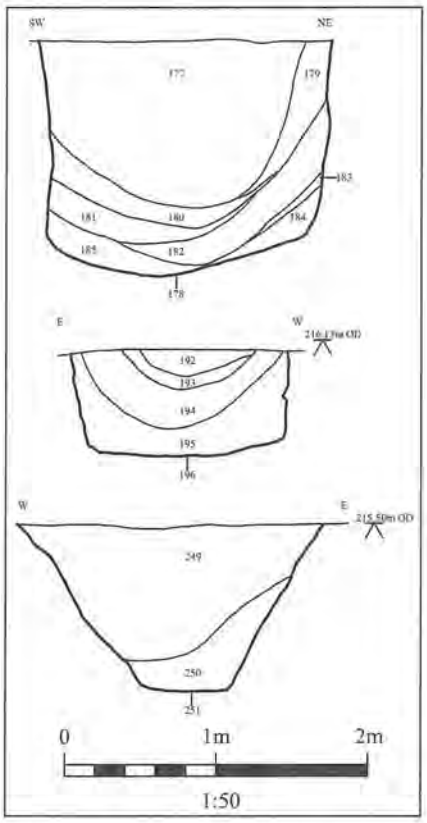
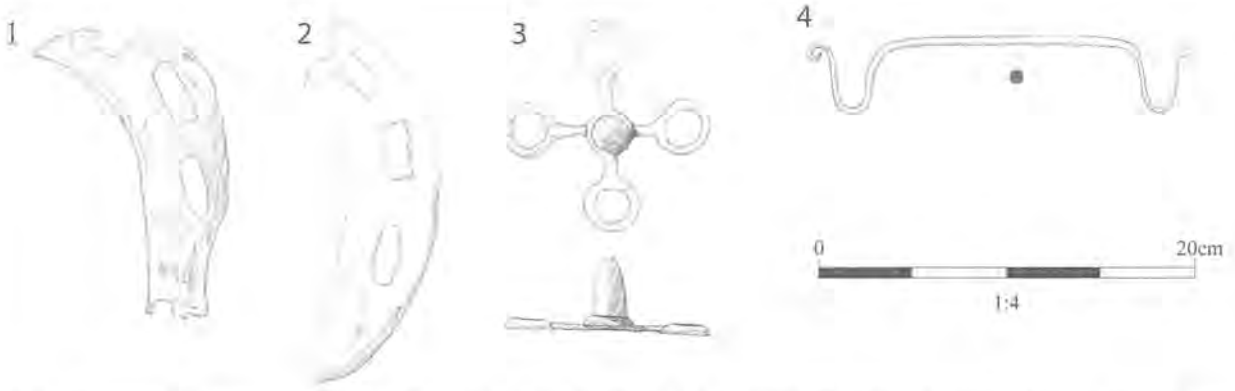


Figure 10: Pit sections

pots in Cheddar C/CC ware, with one spouted pitcher, a cooking pot in Cheddar E fabric, and one vessel each in Crockerton type ware and early Laverstock coarseware. Dog was present in the 500g of domestic animal bone recovered.

The wells had vertical sides and were 1m to 2.2m across, the largest measuring 2.4m by 1.9m, and more frequently circular or sub-circular than sub-square or rectangular. In all but one case they were deeper than it was possible to excavate with health and safety constraints (maximum 3.3m), making their dating less secure. Due to their depth the time taken for them to fill in would be longer, unless done intentionally: having late Saxon pottery in the lower fills and medieval pottery in the upper ones was more common among the wells than the pits. The modern water table is 90m below ground, so they will have either collected run off surface water or exploited a perched water table. No evidence for lining or timberwork remained.

The accessible fills were largely silts with few finds. Fewer than half had more than a small quantity of domestic waste, and when present this was in the upper fill or fills, as was the case with the pits. Well [268] (Fig. 12) had more than most, with no finds recovered from the lower fill, two sherds of Cheddar C/CC ware from the middle one, and eight sherds of a Cheddar C/CC cooking pot and one of a jar in Crockerton-type ware from the upper one. One well [304] had been backfilled with boulders, capped by fills with plentiful domestic waste.



1 & 2 - 'Norman' Horseshoes: London Type 2A (Fill 171, Pit 172 & Fill 249, Pit 251) 3 - Large iron object with central disc and four radiating rings, possibly a bridle or harness or cart-fitting (Fill 177, Pit 178) 4 - Iron object with curved terminals, possibly a handle (Fill 177, Pit 178)

Figure 11: Late Saxon and medieval metal finds

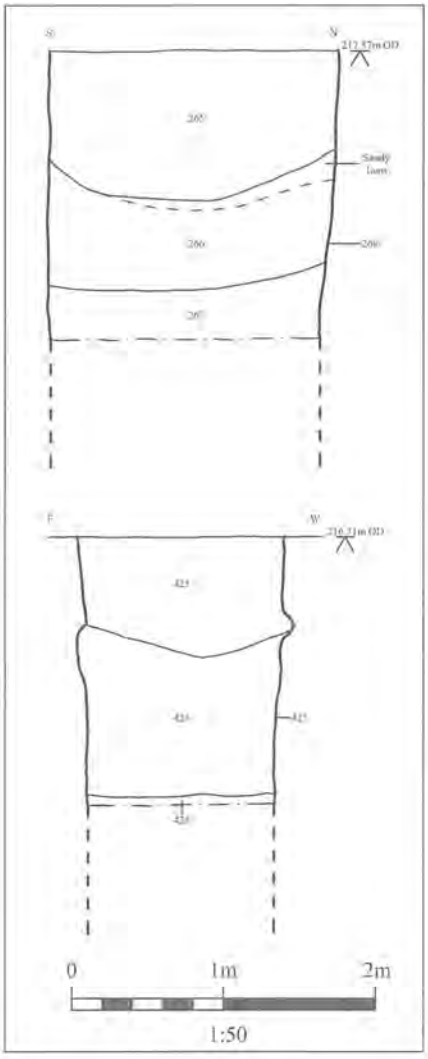


Figure 12: Well sections

Agricultural area (Fig. 13)

Evidence for enclosure by field boundaries is restricted to the central part of the site in the late Saxon period, and identifies an agricultural landscape that lay beyond the area of domestic occupation. These ditches contained small quantities of finds, with between one and four sherds of pottery per feature being recovered.

A large boundary ditch [125], 1.6m wide and 0.65m deep, is likely to have originated in the late Saxon period even though the only securely dated fill is post-medieval: it conforms with the late Saxon site layout to both sides, and was respected by a medieval structure to its north-east. Other elements of the system to the east are directly dated by late Saxon pottery. The boundary at right-angles to [125] was re-established by ditches in both the medieval and post-medieval periods.

Medieval period

Domestic occupation area (Fig. 9)

Some of the ditches sub-dividing the domestic area silted up during the late Saxon period, but others were open until a medieval date. Within [271] there were the remnants of a furnace bottom and 1.5kg of undiagnostic iron slag, from local iron-working: there were signs of this in several other features but no evidence that it was on the site itself. The south-west side of the trackway was re-established on the inside of the original ditch along its whole length by ditch [507], 0.9m wide and 0.2m deep.

Only a few of the medieval pits had very little cultural material, although there is the risk that some have been wrongly ascribed to the late Saxon period. Most, even the large ones, had a single fill. The lower fill of pit [251] (Fig. 10) produced no finds but they were abundant in the upper one. This had five early Laverstock coarseware vessels, including two jars and a spouted pitcher, dating it to AD 1050–1300, and five or six late

Saxon Cheddar C/CC ware vessels, all cooking pots, where the form can be determined. It is therefore one of the few cases where the late Saxon pottery does not dominate. Vitrified hearth lining and a smithing hearth bottom demonstrate iron-working locally at this time, and a piece of a Norman type 2 horseshoe also present may be associated with this (Fig. 11.2). A moderate quantity of bone was also present.

Again, the wells generally had more finds than their late Saxon counterparts. In well [427] (Fig. 12) 2.5kg of pottery dated to AD 1050–1250, 2kg of domestic animal bone, and pieces of iron strip were collected from the two upper of the three exposed fills. Most of the pottery is Cheddar C/CC cooking pots and a Cheddar C/CC spouted pitcher of earlier date, but there are also cooking pots in Laverstock fineware and coarseware.

Agricultural area (Fig. 13)

Some or all of the late Saxon field boundaries enclosing the central area of the site continued in use into the medieval period, even if direct evidence for this only existed for the long north-east to south-west boundary. New field boundaries on a substantially different orientation and not based on the same system were created further to the east.

In the centre of the site, almost filling the space between ditch [125] and another boundary 11–14m to its north-east, there was an L-shaped arrangement of shallow gullies. These are likely to have been beam slots for an agricultural structure, such as a barn, measuring about 8.8m by 11.3m or more. The end of this was represented by two gullies 0.8m apart. Laverstock fineware dates it to 1150–1350. This narrow area could have been set aside for specific agricultural activities related to processing or storage before this possible barn was built. If the gullies were not for beam slots they could have been around an animal pen.

A second medieval structure of probable agricultural function was in a seemingly isolated position about 85m further to the east. It consisted of a circle of eight post-holes, 3.5m in diameter, surrounded by a shallow circular gully 5.0m in diameter. Laverstock fineware and coarseware, an iron nail, and the corner of a peg tile made from the late 12th century onwards were found: one of the Laverstock coarseware sherds had been made into a counter 30mm across. There were no breaks in either the gully or the circle of post-holes, which were about 1.4m apart, that would indicate an entrance to the structure. The post-holes were 0.3–0.5m across and there are indications that the posts were 0.2m across. This structure is too small for larger livestock. Storage is one possibility, but larger rectangular barns would normally have been used for this. A dovecote, or some other shelter for birds or other small animals is perhaps the most plausible interpretation.

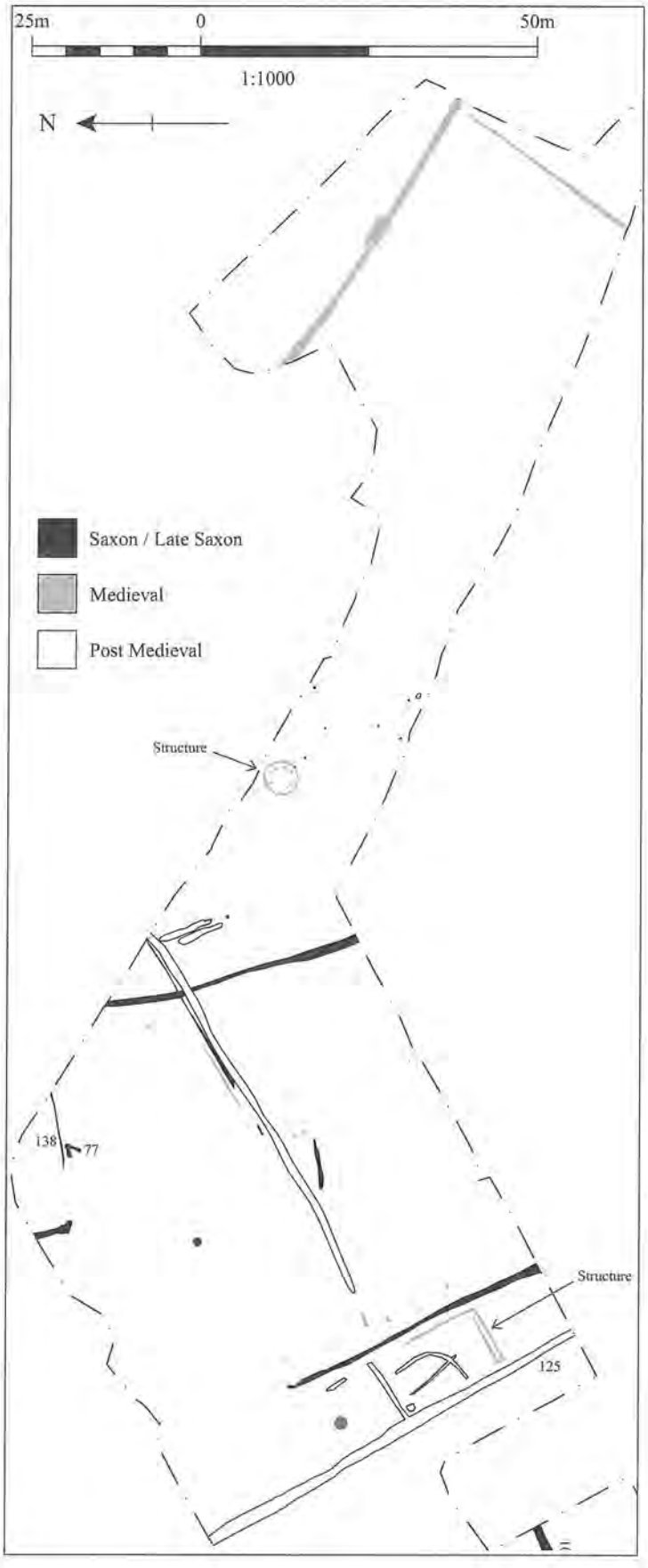


Figure 13: Plan of Saxon, medieval and post-medieval features in the eastern side of the site

Post-medieval period

Some of the field boundaries were retained into the post-medieval period, and a low level of activity, probably associated with agricultural land use, continued. On the west side of the site a scatter of discrete features were the result of horticulture or gardening and other activities (not illustrated).

Specialist Reports

Struck and worked flint

Tony Grey

A small assemblage of thirty-eight pieces of struck flint was recovered from fourteen contexts, plus one piece that was unstratified, during the excavation at Coppice Street, Shaftesbury. In addition there were six pieces of burnt flint and one fire-heated pebble from wet-sieved samples.

Twenty-three of the pieces were knapped waste (debitage) consisting of nineteen flakes and four blades. There was one core fragment and one core rejuvenation flake. Two of the retouched pieces (scrapers) were produced on core fragments or flakes. There were thirteen retouched or worked pieces, all of them scrapers or combination tools (one a broken retouched flake, a possible scraper), the other functions including awl or piercer, burin and possibly a knife. The flint assemblage is quantified by type and context in Table 2.

Description

All of the end scrapers were formed on convex flakes. Four were semi-circular 'horseshoe' side or end scrapers retouched around both sides and across the end: two from (9009); one from (9011); and one from (9041) formed as a combination tool with an awl or piercer at one end of the platform. One was a double end scraper retouched at both ends, from (9011). One was a double end scraper on a thick core flake with steep retouch and notched to produce a possible burin tip, from (9009). Another was produced on a thick core flake with steep retouch, from (9015). One was an end scraper formed via retouch on a shoulder, from (9009). Three were end scrapers from (9023) with one possibly functioning as a knife, one with steep, stepped retouch on a thick flake and one formed on a corticated primary flake. A broken scraper from (9021) has retouch down one side.

The 'horseshoe' convex side or end scrapers exhibit relatively sophisticated technology, with flake preparation by shallow flaking across the dorsal face evenly retouched to produce semi-circular tools of medium size, while the end scrapers are cruder and formed on corticated flint. Core tablet or rejuvenation flakes were used to form two heavy-duty scrapers with steep retouch. The tools from the assemblage reflect utilisation for processing hides. The diagnostic pieces exhibit Later Neolithic to Early Bronze Age characteristics of technology that were contemporary with the construc-

Table 2: Quantification of flint by type and context

Context	Flakes	Blades	Cores	Retouched	Total	Comments
0	1				1	Long, thin, hinge fracture, dark grey flint
85	1		1		2	Core rejuvenation flake
97		1			1	Blade tip
387			1		1	Core fragment
400	1				1	
419		1			1	Blade segment
9009 post-pipe of [9010]	4			4	8	Poss. end scraper (Fig. 5.3); 2 'horseshoe' scrapers (Fig. 5.1 and Fig. 5.2); notched side or end scraper (?burin) (Fig. 5.4); includes wet-sieved
9011 fill of [9012]	5			3	8	Double end scraper (Fig. 5.7); corticated 'horseshoe' side or end scraper (Fig. 5.5); corticated end scraper (Fig. 5.6); 2 flakes are hard-struck; includes wet-sieved
9015 post-pipe of [9016]				1	1	Crude end scraper on thick core frag, steep retouch (Fig. 5.8); wet-sieved
9021 post-pipe of [9022]				1	1	Large broken retouched flake (scraper) (Fig. 5.9)
9023 fill of [9024]	2			3	5	Burnt flake; 3 end scrapers: 1 on primary flake (Fig. 5.10), 1 steep retouch (Fig. 5.11), 1 corticated also poss. knife (Fig. 5.12); includes wet-sieved
9041 post-pipe of [9022]	1			1	2	Small flake; 'horseshoe' side or end scraper or awl (Fig. 5.13); includes wet-sieved
9042 post-pipe of [9016]	2				2	Broken chert flake; flint spall
9048	1	1			2	Flake; bladelet end
9051	1	1			2	Flake; bladelet end
Total	19	4	2	13	38	

tion of the circular structure where most of the flint material was recovered.

The raw material varied from high-quality translucent dark grey flint to mottled flint in varying shades of grey. None was of particularly poor quality. It appears to have been derived from nodules. The core rejuvenation flake from (9015) had a whitish patina indicating deposition in a chalk environment. In addition two pieces of chert were recovered, one not struck from (9002) and the other a shattered flake remnant from (9048).

Twelve of the scrapers and combination tools plus nine pieces of debitage were recovered from the post-hole fills of a circular structure radiocarbon dated to the Early Bronze Age. Four of the tools were from the fill of post-hole [9010], three from the fill of post-hole [9012], a scraper and a core fragment from the fill of [9016], three from the fill of [9024], and one from the fill of [9022]. In addition a 'horseshoe' scraper was recovered from context [9041].

The Coppice Street flint in the wider context

The assemblage recorded above comprised mostly flint with a small amount of chert. Several of the flint pieces were heavily corticated. There are possible sources for the raw material close to the site. Flint may have been derived from clay-with-flints or flinty Upper Chalk on the chalk escarpment to the south and west of Shaftesbury. Cranborne Chase and the Middle Stour Valley lie to the south. Chert may have been derived from the Upper Greensand Bed capped with Chert Beds. Shaftesbury lies on the edge of this outcrop. Clay-with-flints is attested as the raw material for flint knapping at the Dorset Cursus (Gardiner 1985) and chalk-derived flint for Late Neolithic or Early Bronze Age tools and waste at the Manor Farm settlement site, where the flint is all residual in later contexts (Valentin 2003, 25). Chert from the Greensand was the raw material for worked flint at Wayside Farm, Devizes, Wilts (Valentin 2002, 193), and chert from gravel was used at Hodge Ditch, Thorncombe, Dorset (Ford 2004, 36–8).

Discussion

The small assemblage of struck and worked flint from Coppice Street, Shaftesbury, contained a high proportion of scrapers and combination tools exhibiting Neolithic to Early Bronze Age technological features. All were located in the post-holes of an Early Bronze Age circular structure. The worked flints may be located in the post-holes by chance or they may have been deliberately placed there for a ritual purpose. Although no pre-Bronze Age features were located, the site should be viewed as part of a broader multi-period landscape. It existed on the margins of areas with major Neolithic and Bronze Age features and monuments, such as Cranborne Chase to the south-east, with its Early Neolithic long barrows, and the Dorset Cursus as focal points for later activity. Beyond Cranborne Chase lies the Late Neolithic Knowlton Circles henge monument, a focus for Early Bronze Age round barrows and ring ditches. It may well be that the Coppice Street circular structure was built with continuity with these earlier periods of settlement in mind.

Prehistoric pottery
Charlotte Thompson

The small assemblage of 37 sherds of Bronze Age pottery weighing 323g and two Roman sherds weighing 37g were recovered from two phases of work at the site. The prehistoric sherds come from 14 different contexts, and just under two-thirds of these sherds are from bulk samples. The following three prehistoric fabric groups were established:

FLIN1: a hard fabric with a slightly silty micaceous matrix; very common to abundant well-sorted medium sub-angular quartz; sparse medium rounded glauconite; rare coarse angular quartzite; rare coarse rounded quartz.
FLIN2: a hard fabric with a slightly silty micaceous matrix; common to very common ill-sorted fine to very coarse (up to 7mm) crushed calcined flint; sparse ill-sorted medium rounded iron-rich inclusions; rare medium rounded quartz.
GROG: a semi-hard fabric with a silty micaceous matrix; common to very common ill-sorted very coarse (up to 2mm) sub-rounded grog or clay pellets; rare to sparse ill-sorted medium to very coarse crushed calcined flint; rare medium to coarse quartz; moderate medium rounded iron-rich inclusions.

Nearly all of the prehistoric sherds are made from GROG, and almost all of these come from post-holes that are thought to have formed a circular structure. Grog-tempered pottery is characteristic of the Early to Middle Bronze Age in Dorset (Laidlaw 1999, 113) and Cleal's analysis of Early Bronze Age fabrics in Wessex indicates that Beaker pottery and Collared Urns have similar inclusions to the GROG fabric at Coppice Street (Cleal 1995, 190). The sherd walls are too thick to be Beaker vessels and none have decoration such as whipped cord or fingernail impressions that are usually associated with this type of pottery. The sherds could be from the body of Collared Urn, such as the example from the Dorchester bypass (Cleal 1997), but the tapered in-turned rim in context (9041) suggests at least some of the sherds are from a plain vessel, perhaps similar to those from Tolpuddle (Laidlaw 1999, 111–13). The radiocarbon dates from two of the post-holes from the circular structure also support an Early Bronze Age date.

The handful of flint-tempered sherds from the site are almost certainly later than the grog-tempered sherds and are from two distinct areas on the site: three sherds are from a group of stake-holes and post-holes in the same area as the Early Bronze Age circular structure, and another cluster of flint-tempered sherds come from two post-holes some distance away (contexts (4) and (25)).

Although calcined flint was also used in post-Roman pottery, comparison of FLIN1 and FLIN2 with medieval flint-tempered sherds from the area suggest that the medieval sherds tend to contain very coarse flakes of mica, something that is absent in the Coppice Street sherds, and the medieval sherds also contain less flint and have thinner walls. The fabric and wall thickness of the FLIN2 sherds support a later Bronze Age date.

The two sherds of Roman pottery are highly abraded and from features that are situated a long way apart. One from fill (27), post-hole [28], is a small rim (<2g) of an unsourced white-slipped fabric which has common well-sorted fine to medium sized iron-rich inclusions. The larger sherd, from fill (329) or (330), well [333], is a piece of highly abraded Oxfordshire region red/brown colour-coated ware. Although the surface is missing, it is clear that it is from a Young type C51 flanged bowl, a copy of a samian Dragendorff form 38 bowl, which is dated *c.* AD 240–400.

Post-Roman pottery
Lucy Whittingham

This assemblage of 3191 sherds (40kg) divides into two distinct groups; an assemblage directly associated with a kiln structure and a domestic assemblage associated with 23 wells, 52 pits and 27 linear ditches. A large part of the assemblage survives in substantial pieces with some near-complete vessel profiles. All of the pottery has been identified and quantified with reference to published assemblages from Wiltshire, Somerset and Dorset, such as Warminster (Smith 1997), Cheddar (Rahtz 1979), Trowbridge (Mepham 1993), Shaftesbury (Keen 1977), Ilchester (Pearson 1982) and Wilton (Mepham 2000). A site-specific fabric type series has been established and all of the sherds quantified, recording sherd count, weight, estimated vessel number (ENV), form and decorative attributes. Each fabric type has been dated and a spot date established for each context. These details are recorded on an Excel database spreadsheet and can be consulted with the site archive.

The domestic assemblage

A late Saxon and Saxo-Norman domestic assemblage of 1674 sherds, 1070 ENV (25 kg) is associated with the 75 pits and wells and a further 27 linear ditches from a pre-conquest area of settlement within the town. There is also a small assemblage of 29 post-medieval sherds (1.0kg) from 12 contexts. The domestic assemblage will be discussed by fabric type in chronological order.

Early to mid-Saxon

One diagnostic early to middle Saxon fabric can be identified. This is a reduced dark grey/black micaceous fabric with fine well-sorted quartz temper, represented by twelve sherds from seven vessels. The fabric is densely packed, with well-sorted, fine sub-angular quartz of less than 0.2mm and occasional large greensand/sandstone inclusions of between 0.5 to 1.5mm. Three simple everted rims survive from small jars of 140mm rim diameter. All of these early to middle Saxon vessels are residual in fills (52) in pit [50], (112) in ditch [113], (136) in post-hole [137], (191) in pit [187], (236) in pit [237], (422) in pit [421], and (517) in pit [231/526].

Saxo-Norman/pre-conquest wares

Cheddar C/CC

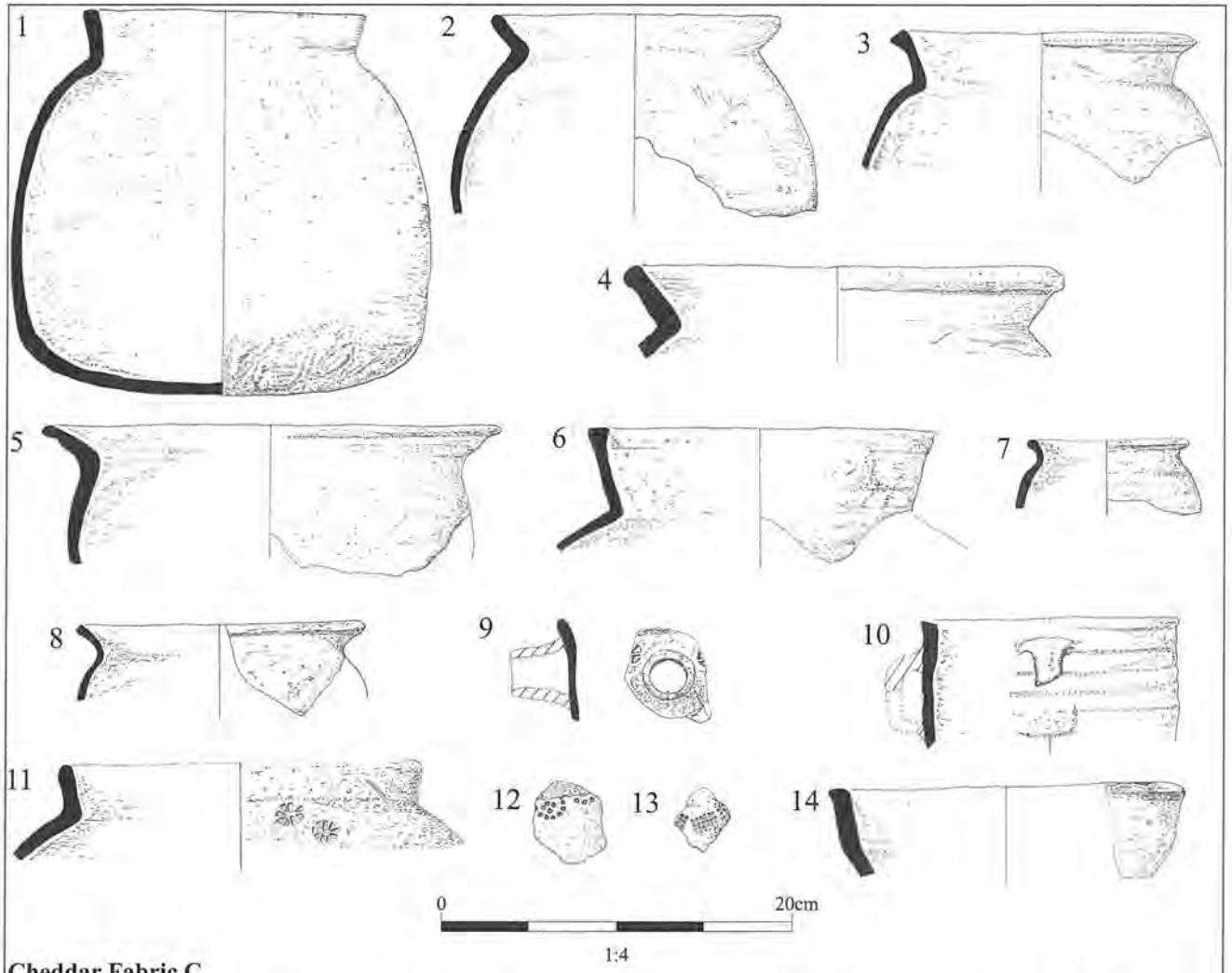
The bulk of the domestic assemblage is found in a hand-built tradition defined by Peacock (1979) as Cheddar type C/CC and dated by association with Periods 2 and 3 of the palace at Cheddar from 930 to 1066. A similar hand-built ware is produced from kilns at Ilchester (Fabrics A1 to A3) which are dated as pre-930 (Pearson 1982).

The fabric is a hard-fired, quartz- and limestone-tempered fabric with characteristic soapy surfaces. All of the sherds have quite vesiculated surfaces where the limestone temper has leached out and quartz grits have been pulled out of the surface of the vessel as it has been wiped in a leather-hard stage of production. The fabric has a fine clay matrix with moderate sub-angular quartz of up to 0.5mm, occasional well-rounded shiny quartz of up to 1mm, frequent limestone temper and occasional shiny black sub-angular fragments of chert. Most of the vessels have red/brown surfaces and a grey core, though within this assemblage there is a considerable variation in colour between the vessels. Some vessels are a pale buff/grey colour and others are highly fired to a bright orange colour with purple/grey flashes on the external surface. This degree of variation is unusual (Mepham, pers. comm.) and is perhaps indicative of an assemblage from a kiln group, a theory which is supported by a number of vessels which have blistered and spalled external surfaces.

A large assemblage of 1,583 sherds (24 kg) from an estimated maximum 1,010 vessels are found within this fabric type. Of these, 118 cooking pots or jars, three small jars, fourteen spouted pitchers, six bowls and one pedestal lamp can be distinguished from rim fragments or diagnostic pieces.

All of the 118 cooking pots or jars are very similar in style, with a characteristic rounded, hand-built body shape with sagging base which has been flattened in the centre. The hand-built structure of the pots is most noticeable at the shoulder, where there is a pronounced join and the neck and rim of the vessel have been wiped smooth. The same characteristic was noted on similar pottery found at St Peters Church, Shaftesbury, where Keen also comments on the smoothed rims and shoulder zone, which contrasts with the uneven surface of a hand-made pot, clearly visible on the insides of the vessels (Keen 1977).

The characteristic rounded body shape of the cooking pot or jar is well illustrated by a near complete vessel in



Cheddar Fabric C

1 - Typical cooking pot or jar; rounded hand-built body and short slightly everted rim (Fill 195, Pit 196) 2 - Cooking pot or jar; short simple everted rim with a rounded edge (Fill 121, Pit 099) 3 - Cooking pot or jar; short everted rim, on which the outer edge is smoothed and bevelled (Fill 358, Pit 360) 4 - Cooking pot or jar; short thick rim up to 1cm in thickness (Fill 191, Pit 187) 5 - Cooking pot or jar; tall, everted rim with rounded edges (Fill 121, Pit 099) 6 - Cooking pot or jar; taller rim with thickened or flattened edge (Fill 203, Well 204) 7 - Small rounded jar; simple everted rim (Fill 422, Pit 421) 8 - Small rounded jar; simple everted rim (Fill 203, Well 204) 9 - Spouted pitcher; short tubular spout; decorated on either side of the spout with circular wheel stamps, which may have continued in a horizontal line around the vessel (Well 379) 10 - Spouted pitcher of barrel-shaped form; inturned thickened rim and small strap handle (Fill 318. Well 309) 11 - Spouted pitcher; decorated with circular wheel stamped impressions (Fill 312, Well 313)
12 - Spouted pitcher; decorated with a stamped pattern of notches forming a ring around a central cross (Fill 413, Pit 414)
13 - Sherd decorated with stamped grids of 4 x 6 square notches used in repeated patterns (Fill 377, Well 379)
14 - Round bowl; thickened flat-topped rim, the top of the rim decorated with thumbed imprints at 3-4 cm intervals (Fill 282, Well 283)

Figure 14: Late Saxon pottery: the domestic assemblage

fill (195) in pit [196] (Fig. 14.1). Within the 118 cooking pots or jars there are six minor variations in rim form, which correlate to the size of the vessel as measured by rim diameter. The most common rim (33%) is a short upright form, which has a cut or flattened edge. This may have been formed by batting the top edge flat or by trimming away the excess clay with a knife or blade (Fig. 14.1). The second most common rim (26%) is a short everted form with simple rounded edge (Fig. 14.2). Less common (18%) is a short everted rim on which the outer edge is smoothed and bevelled (Fig. 14.3). One or two of the everted rims have thumbed decoration but these are not common. All of these vessels range in rim diameter from between 140 to 160mm. Occasional examples have a short and quite crudely constructed rim, being approximately 10mm thick in section and ranging from 160 to 240mm in rim diameter (Fig. 14.4). Similar vessels have been noted in the assemblage at Cheddar (Rahtz 1979, fig. 99.32). A smaller number of vessels (19%) have taller rims; 9%

with simple everted forms with rounded edges (Fig. 14.5) also found at Cheddar (Rahtz 1979, fig. 99.8) and occasionally (5%) with more elaborate thickened or flattened edges (Fig. 14.6). These taller rims tend to have larger rim diameters of between 200mm and 260mm. Three much smaller rounded jars are very similar in shape to the larger cooking pots or jars but are of smaller proportions. These small jars have simple everted rim of between 100mm (Fig. 14.7) and 160mm diameter (Fig. 14.8).

Although cooking pots or jars are by far the largest category of vessel type found in Cheddar type C fabric there are also a small number of other vessel types. Fourteen spouted pitchers are represented, one by a short tubular spout (Fig. 14.9) and a second by a barrel-shaped vessel with thickened rim and small strap handle (Fig. 14.10). The tubular spout is decorated on either side with circular wheel stamps which may have continued around the shoulder of the vessel. Decorative motifs include stamped wheel patterns (Fig. 14.11) and stamped circular patterns containing a central cross (Fig. 14.12), stamped grids of 4 × 6 square notches used in repeated patterns (Fig. 14.13) and incised lines drawn in a zigzag line around the body. The various stamped motifs are associated with spouted pitchers as illustrated in Figure 14.9, though the crude incised line decoration may be from a cooking pot or jar. Two large strap handles, one with three incised grooves, the other possibly a wheel-thrown example, are probably from handled jars rather than spouted pitchers. The occasional sherd that has a splashed lead glaze on the external surface may also be from a spouted pitcher form. Spouted pitchers are not recorded in either the Cheddar (Rahtz 1979) or Ilchester assemblages (Pearson 1982).

Bowls are quite rare in this assemblage, represented by six vessels. All of the examples are of a similar rounded form with thickened flat-topped rim of 200mm diameter (Fig. 14.14). Two examples are decorated on the top of the rim with thumbed imprints at 30 to 40 mm intervals, as in Figure 14.14. No parallels can be found in the Cheddar or Ilchester assemblages.

The central pedestal of a lamp survives from fill (203) in well [204], though in a very abraded condition. A series of similar lamps were found at Cheddar in fabric type B – see Rahtz 1979, fig. 10, for possibly the closest parallel.

Cheddar E; wheel-thrown wares

Two cooking pots or jars occur in a similar fabric to that defined above as Cheddar C (Peacock 1979). These vessels differ in being wheel-thrown and have distinctive and different rims forms. Only the rim and shoulder fragments of these vessels survive but the body shape is assumed to be rounded. One cooking pot has a short everted simple rim with rounded edge, 160mm in diameter, and in this respect is very similar to the hand-built cooking pot or jars. The rim is, however decorated at intervals on the top edge with two thumbed imprints (Fig. 15.1). There are no thumbed rims present in the hand-built wares. The second cooking pot has a completely different rim form from any vessel in the hand-built group. This is a taller form (220mm diameter) with rounded everted rim (Fig. 15.2) much more typical of a wheel-thrown vessel, and is similar to examples from Cheddar (Rahtz 1979, figs 9.23, 99.28 or 99.22).

A similar wheel-thrown ware at Ilchester (Fabric A4, Pearson 1982) is dated as slightly later than the hand-built fabrics A1 to A3 and by comparison with Cheddar fabric E as *c.* 930–1000.

Crockerton-type ware

Fourteen examples of cooking pots or jars may be an earlier product of the Crockerton kilns, though there is no known source for the medieval products of Crockerton. These wares are quite distinct from those identified as similar to Crockerton fabric type H found *in situ* in the kiln. These are wheel-thrown vessels in a hard, well-fired oxidised earthenware, tempered moderately with fine sub-angular quartz of less than 0.1mm, occasional rounded and sub-rounded quartz and iron oxide of 0.5–1.0mm and sandstone/greensand of 0.5–1.5mm. Moderate calcareous temper occurs more commonly in thin plate-like shelly limestone up to 0.5mm in length and occasionally in large rounded fragments of up to 2mm.

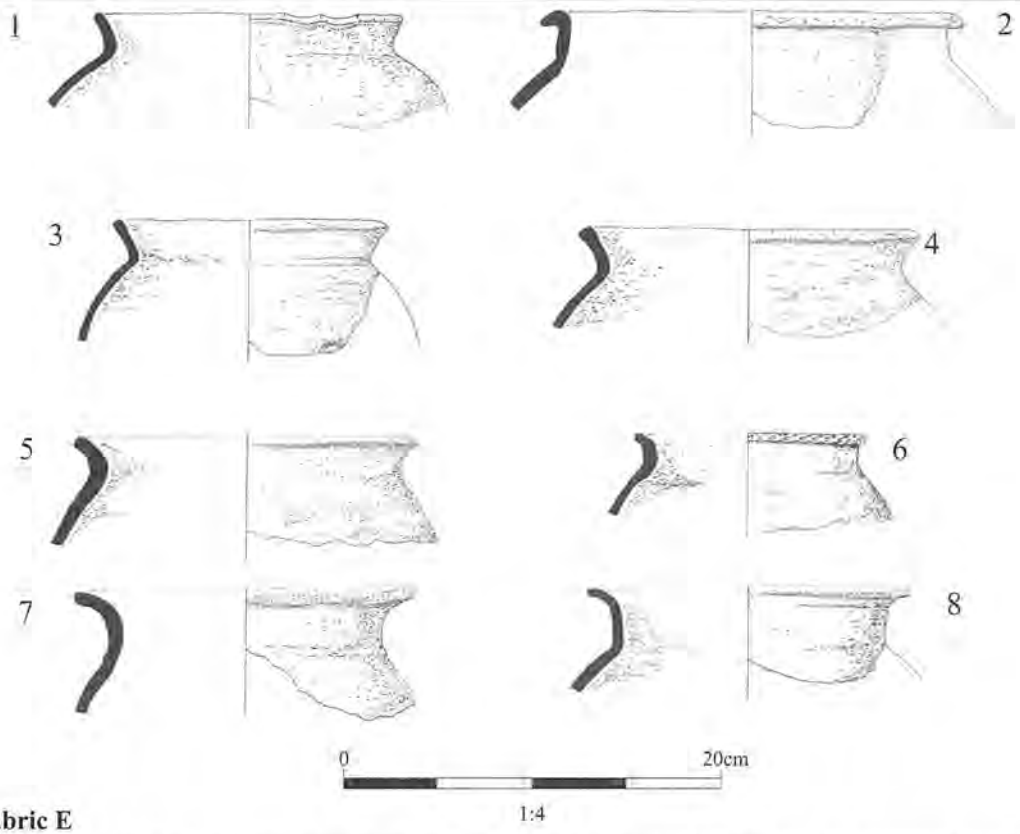
Four rim fragments are all from rounded vessels with short everted rims, either with a bevelled edge (Fig. 15.3), flattened edge (Fig. 15.4) or slightly upturned edge (Fig. 15.5) of between 140 and 180mm diameter. The similar style of these vessels in comparison with those in Cheddar C ware suggests that they are of a similar 10th to 11th-century date. An early medieval Crockerton-type ware occurs at Wilton (Mepham 2000, Q405) where it is associated with the early Laverstock-type coarsewares (E422A) within a mid-9th to 12th-century date range.

Limestone and flint-tempered ware

One undiagnostic sherd is found in a coarse limestone and flint-tempered fabric, probably of pre-conquest date. The fabric is oxidised and has a smooth soapy texture, somewhat similar to Cheddar C ware. It is coarsely tempered with crushed limestone up to 2mm in size, occasional oolitic limestone up to 1mm in size, angular flint fragments up to 2mm in size and occasional rounded quartz of 2mm size. This sherd is likely to fit into the pre-conquest tradition of wares such as those found at Ilchester, Cheddar and Wilton where it seems similar to fabrics such as C400 (Mepham 2000) dating from mid-9th to 12th century. The sherd is found with Cheddar C sherds in fill (356) in pit [357].

Miscellaneous quartz-gritted fabrics

A small number of vessels in a well-sorted, hard-fired, reduced greyware has no parallel with other wares in the region. These occur in three vessels, two cooking pots and a spouted jug of unusual form. One small



Cheddar fabric E

1 - Wheel-thrown cooking pot or jar; a short everted simple rim with rounded edge, the rim decorated at intervals on the top edge with double thumbed imprints (Fill 177, Pit 178) 2 - Wheel-thrown cooking pot or jar; everted rim of rolled or folded construction (Fill 194, Pit 196)

Crockerton-type ware

3 - Wheel thrown cooking pot or jar; short everted rim with a bevelled edge (Fill 371, Well 373) 4 - Wheel thrown cooking pot or jar; short everted rim with a flattened edge (Fill 361, Pit 362) 5 - Wheel thrown cooking pot or jar; everted rim with a slight upturned edge (Fill 302, Well 304)

Miscellaneous early medieval greyware

6 - Cooking pot or jar; everted rim; decorated with a continuous row of notches around the rim (Fill 177, Pit 178)

Laverstock-type coarseware

7 - Early Laverstock-type cooking pot or jar; hand-built form; simple everted rim; join of body to neck thickened (Fill 349, Pit 350) 8 - Cooking pot or jar; tall neck; simple everted rim with bevelled edge (Fill 228, Well 229)

Figure 15: Late Saxon to early medieval pottery: the domestic assemblage

hand-built cooking pot or jar is unusual in having continuous notches all around the outer edge of the everted rim (Fig. 15.6). Other forms in this fabric cannot be identified but one may have some kind of pulled-out spout starting at a very low point on the body. These wares cannot be dated, but their manufacturing techniques are indicative of a Saxo-Norman or early medieval date. They occur with pits and rubbish pits where they are associated with assemblages of mixed date.

Early Laverstock-type coarseware (type A)

Within the Wiltshire region medieval sandy wares, similar to the products of the Laverstock kilns outside Salisbury (Musty *et al.* 1969) have been defined by Mepham as Laverstock-type coarsewares. These are divided into several variants, the coarsest of which is fabric E422A at Witton (Mepham 2000). This particular coarseware is represented by fifty-five sherds at Coppice Street, tempered with ill-sorted, abundant quartz, some iron-stained of 0.2–0.4mm. There are also occasional large angular quartz of 0.5–1.5mm and fragments of flint roughly 0.5mm in size. These early Laverstock-type coarsewares are found both at Coppice Street and at Witton in association with Saxo-Norman wares, such as Cheddar E of mid-9th to 12th-century date, though at Salisbury the same fabric is known to continue into the 13th century (Mepham 2000).

A maximum of fifty-three cooking pot or jars and two spouted pitchers are found in this fabric type. A minimum of six cooking pots or jars are represented by rim fragments. These vessels cannot be reconstructed beyond the rim and shoulder which indicate that these

are coarse, hand-built vessels of rounded body form and with simple everted rims (Fig. 15.7) between 120 and 240mm rim diameter. One example is decorated with notches on the rim edge. Two spouted pitchers in a similar coarse, oxidised fabric are represented by glazed sherds with a continuous dull olive green, lead glaze on the exterior surface. These diagnostic pieces have everted rims (200mm diameter) and a single small strap handle. No actual examples of the spout survive but the form is clearly represented. These wares are part of the tradition of south-east Wiltshire pitchers in which the fabric is similar to the early Laverstock-type coarsewares and is usually found with an olive brown/green glaze. South-east Wiltshire pitchers have been identified at Warminster where they are defined as Fabric L and dated 1050–1250 (Smith 1997).

Laverstock-type coarseware (type B/C)

A smaller number of vessels are found in the finer variant of Laverstock-type coarsewares, defined by Mepham (2000) as types B and C. Fifty-one sherds from a maximum 39 vessels are found in a hard-fired, reduced greyware, tempered with sub-rounded quartz of between 0.2–0.5mm with the occasional larger quartz of 1mm. Cooking pots or jars with simple everted rims (Fig. 15.8) are the most common form, represented by three rim fragments of between 170 and 200mm diameter. One sherd has been cut into a 30mm counter. These finer variants of the Laverstock-type coarsewares are considered to be comparable with the 13th-century products of the Salisbury kilns, though the overall date range for these products may be much greater (Mepham 2000). At Coppice Street they occur in the same contexts as the early Laverstock-type coarsewares and may range from the Saxo-Norman period to an early medieval date (1050 to 1250?).

Scratchmarked wares

Twenty seven sherds from 17 vessels have scratchmarked decoration. These are found on both coarse and fine quartz-tempered fabrics of Laverstock-type coarseware (types A, B and C). Scratchmarked ware has been defined as 'a fabric of ubiquitous nature in south-east Wiltshire' and dated, for example at Warminster, as 1050–1300 (Smith 1997). More recently they are referred to as part of the Laverstock-type coarsewares (Mepham, pers. comm.).

Medieval wares

Laverstock-type fineware E420

Sixty-five sherds from a maximum 60 cooking pots or jars are found in a well-sorted, fine quartz-tempered fabric. The quartz particles are sub-rounded and generally less than 0.2mm in size. These fine, buff-coloured earthenwares can be paralleled with the later medieval Laverstock-type fineware (type E420), similar to Laverstock products of the mid-13th century (Mepham 2000). Wheel-thrown cooking pots and jars have everted rims of between 160 and 240mm diameter with hooked or inturned rim edges and are quite distinctive from the earlier Laverstock-type coarsewares. The occasional example is thumbed on the exterior edge. A small number of these vessels also have splashed lead glazing on the exterior surface.

Laverstock-type fineware E421

Thirty-nine undiagnostic sherds occur in a hard-fired oxidised, buff or pink quartz-tempered fabric. Wheel-thrown jugs are represented by relatively thin-walled sherds from baluster bases, thumbed bases and decorated jugs with lead glaze and applied strip decoration. These are possibly the later mid 13th-century products of the Laverstock kilns near Salisbury and equate to Mepham's Laverstock fineware fabric E421 described as firing buff or salmon pink in colour (Mepham 2000). Similar wares at Warminster are described as 'Laverstock glazed ware' in a grey, hard-fired, quartz-tempered fabric with lead glaze and applied red slip decoration, probably from Laverstock, dated 1150–1350 (Smith 1997).

The kiln assemblage

A large assemblage of 1279 sherds (11 kg) from 161 vessels, was found *in situ* in fills (076), (078), (146–150) of a kiln structure [077], [143] and [145]. The pottery has been identified as Crockerton-type ware (Mepham, pers comm.), closest to fabric type H as defined by Smith (1997) at Warminster. In contrast to the domestic assemblage from the various wells and pits, these sherds are well preserved and include two complete examples of jars (Fig 8.1–2), which are the most common vessel type found. The assemblage is clearly the product of this kiln as there are very few sherds found outside of the central firing chamber. Evidence of a kiln assemblage is represented in the vessels by some distortion and warping of the vessel rims, spalling of external surfaces, flashing in the colour of the vessels and some cracking near to the rims of vessels. This particular collection represents the last firing of this particular kiln and seems likely to be the unfinished products of a failed and incomplete firing. The soft powdery condition of the vessels is also indicative of a low-firing temperature which also suggests this kiln never reached its final firing temperature. All of the pottery is found in the same, fine quartz-tempered fabric in which the quartz are barely visible at less than 0.2mm. The fabric is quite micaceous, which is clearly visible on the surfaces. A small percentage of the vessels (17%) have the same micaceous grey fabric but with coarse quartz temper of 0.2–0.3mm, coarse fragments of Greensand 0.2–3mm and occasional sub-rounded fragments of black chert 0.2–0.3mm. The Greensand and chert are prominent and protrude from the wiped surfaces. The majority of vessels are reduced to a pale grey colour, occasionally with a light grey core. A small percentage of the assemblage (11%) is fully oxidised throughout. Some of these oxidised vessels have flashes of grey colouring on the external surface.

Table 3: Summary of cooking pot or jar types associated with the kiln (fill 076)

	Rim type 1 Vessel no.	Rim type 1 EVE	Rim type 2 Vessel no.	Rim type 2 EVE	Rim type 3	Rim type 4
Fine fabric	46	860%	36	688%	1	
Coarse fabric	9	170%	14	255%		1
Totals	55	10.3	50	9.4	1	1

As the fabric is so uniform and the majority of sherds from jars of a similar rounded form it is impossible to reconstruct these sherds into vessels. The maximum number of vessels, estimated by counting the number of rims present, calculates a maximum of 108 vessels present. Of these 107 are rounded jars with slightly flattened bases and simple everted rims as illustrated by Figure 8.1–2. Statistically, an estimated vessel equivalent of 19.7 jars can be calculated by measuring all of the jar rim diameters and adding the percentages of the fragments together (see Table 3). The complete vessels illustrated in Figure 8.1–2 show the standard jar form found in this kiln group. All of the vessels are hand-built, as shown by the rough hand-construction visible on the internal surface of the vessel and the smoothed and wiped external surface. In some vessels the shoulder is quite prominent but this is merely an exaggeration of the vessel shape made more noticeable by the contrast between the rough hand-built surface and the smoothed outer shoulder and rim. The two complete jars, which stand between 140 and 170 mm high, are representative of the majority of jars found in the kiln assemblage. There is a minor degree of rim variation within the jar rim forms due to the hand-built nature of their construction, but as a group they divide generally into two types: a thin, wide everted rim which tapers towards the outer edge (type 1); and a narrower, thicker rim with rounded edge (type 2). Figure 8.1–4 illustrates the typical type 1 rim, which is a wider form occurring on jars with a rim diameter of between 100 and 180mm diameter. Figure 8.5–6 illustrates the narrower and thicker type 2 rim which has a rounder profile in jars with of 120 to 180mm rim diameter. Jars of 160mm rim diameter are the most common in both rim types. Figure 8.7–8 illustrates the type 2 rim in vessels which are coarsely tempered with Greensand and Figure 8.9 illustrates the thinner, wider type 1 rim in the same coarse fabric. Of the 107 examples of jars rims, 51% are of type 1 and 46% of type 2, suggesting that they are all of a similar everted style and that the difference in type is merely a result of throwing technique and not a deliberate or significant stylistic difference. Both types also occur in both the coarser and finer fabric types. Figure 8.10 and Figure 8.11 are single examples of rims which are quite different. Figure 8.10 illustrates a jar in the coarser fabric which has a more upright rim (140mm diameter), somewhat reminiscent of the Cheddar C wares found in the domestic assemblage. Figure 8.11 is of a small squat, globular jar with short out-turned rim (80mm diameter).

The only decoration found occurs on five jars in the coarse fabric. The decoration is simple, in the form of vertical incised lines, approximately 50 mm long and spaced at 15 mm intervals around the shoulder of the vessel. The lines and sometimes broader slashes have been impressed with the edge of a knife blade or piece of wood pressed into the surface of the pot.

A single example of a handled jar is represented by eight sherds that join together (Fig. 8.12). These are from a jar with a thick everted type 2 rim, of 200mm diameter, which has one surviving handle; a wide strap handle coming off the rim and joining to the shoulder. The vessel is likely to have had two handles unless it is a form of spouted pitcher with the spout on the opposite side to the handle. This handled jar is reminiscent of late 9th to 11th-century Thetford ware handled jars (Vince and Jenner 1991, fig. 2.90 no. 206).

A large globular jar of a fine but sandy fabric is the only example of its fabric type and form. It has been retrieved from the wet-sieving sample <24> within the fill, (078), of the south flue of the kiln but is such a different type of product that it may not be kiln material. One very abraded fragment of Cheddar C ware was also found in the same sample, suggesting that it may contain intrusive material. Sample <25> from fill (148) of the west flue of the kiln also contains a lead-glazed medieval sherd.

A further four sherds (0.5 kg) of this kiln material are found in the domestic assemblage, in three different pits, and a well. They must be residual in these contexts as they are associated with sherds of pre-conquest Cheddar type C/CC ware, dated 930–1066 (Rahtz 1979).

Discussion

The presence of early and middle Saxon pottery is of note on this site but of little further relevance as the sherds are clearly residual in their archaeological contexts. The two distinct assemblages, one from a mid- to late Saxon kiln, and the other a predominantly pre-conquest domestic assemblage, are of profound significance to the regional archaeology of Dorset. The domestic assemblage is of paramount importance to the history of pre-conquest Shaftesbury as the site is located at the opposite end of the corn market to the abbey precinct founded by King Alfred in 888. This assemblage must be of significance in identifying pre-conquest occupation at the north-east end of the market place. There are few such well-dated and well-preserved assemblages known from within Dorset.

The kiln assemblage is a remarkable and distinct assemblage found in direct association with a double-flued structure. All of the vessels are of a similar form type, and have the same micaceous character typically associated with Crockerton-type wares found throughout central and west Wiltshire (Mepham, pers. comm.). This particular fabric is closest to that defined as Crockerton-type H by Smith (1997, 21) at Warminster but to date this fabric has not been recognised elsewhere within the south-west (Mepham, pers comm.). The term 'Crockerton-type' or maybe 'Shaftesbury Crockerton-type' is best applied to this kiln assemblage as it is the first late Saxon or Saxo-Norman kiln site to be identified for any of the medieval Crockerton-type products. This kiln is therefore a highly significant find, as it establishes the production of Crockerton-type wares at Shaftesbury as well as at Crockerton, 2km south of Warminster, demonstrating various production sites within central Wiltshire belonging to the same ceramic tradition. Research by Jean le Patourel (1968) has established documentary evidence for potters at Crockerton in the 13th century and as late as the 16th century. A post-medieval (16th-century) kiln has also been excavated at Crockerton that, in plan, would appear to be a Type 1b style kiln (McCarthy and Brooks 1988, 43). The Coppice Street kiln products are a new type of Crockerton-type ware and earlier than any previously found in the county. The radiocarbon dates (SUERC-9152 and 9153) produced from the charcoal within the kiln give a date of mid-7th to mid-9th century. Given that the Crockerton industry is an on-going medieval industry, the author's preference would be towards the later part of this date bracket. Stylistically the pottery is very sophisticated for mid-Saxon or 7th-centuy material.

The domestic assemblage is dominated (84%) by hand-built limestone-tempered Cheddar C ware; a late 10th to early 11th century pre-conquest assemblage containing a diverse range of forms. Similar vessel types are well=known from pre-conquest and Saxo-Norman sites throughout the surrounding area, for example at Ilchester and Cheddar in Somerset, Wilton and Warminster in Wiltshire, and Shaftesbury in Dorset. There are only two wheel-thrown vessels in Cheddar E from this site, but they are well represented in other mid–late 10th and 11th-century assemblages throughout the region, for example at Trowbridge, Wilton and Warminster in Wiltshire and at Ilchester and Cheddar in Somerset. Of note are the pre-conquest wares (fabrics A1–A4) from kilns at Ilchester which Pearson (1982, 179) compares to the pre-conquest wares at Cheddar. The fabrics are different but Pearson comments on the similarities in technology, form and decoration, which suggest a dispersed pattern of production within a regional style (*ibid* 1982, 179). The Cheddar C-type ware at Shaftesbury may contribute further to this theory, particularly as the vessels display the characteristics of a kiln group (see above). It may be that there is another kiln in the Shaftesbury area producing pre-conquest wares in the same tradition as those produced at Ilchester and found at Cheddar. This would set the Shaftesbury pre-conquest Cheddar-type wares into Pearson's regional framework of dispersed production centres. The term Cheddar ware may now prove to be misleading as this is not a kiln site. It may be that a source for 'Cheddar-type wares' lies within a corridor between Ilchester and Shaftesbury and is further to the south, within east Somerset or north-west Dorset.

Associated with the late 10th to 11th-century Cheddar/Ilchester wares is a small assemblage of medieval Crockerton-type wares and several quartz-tempered wares that seem to be part of the south-east Wiltshire/Laverstock tradition. These are a range of ubiquitous quartz-tempered fabrics, which have been identified variously as Scratch-marked ware, South-east Wiltshire pitchers and Laverstock glazed wares. All of these fabrics are common in Wiltshire, for example at Trowbridge and Wilton, and extend into Somerset, for example at Warminster. At Coppice Street they form a minor part of the assemblage (14%) but enough to show that they represent a second tradition within the domestic assemblage and extend its distribution into north Dorset. The Laverstock-type coarsewares and scratch-marked Laverstock-type wares occur with the Cheddar hand-built wares in pre-conquest assemblages and therefore pre-date the known mid-13th-century Laverstock production period.

At Warminster, Smith (1997) divided the assemblage into two long-lived pottery traditions, one essentially local to Warminster (the Crockerton-type wares) and the other (south-east Wiltshire/Laverstock wares) centred on the Salisbury area. The Coppice Street domestic assemblage divides similarly into two zones of ceramic influence, the major being the Cheddar/Ilchester tradition of pre-conquest wares coming from the west, and the minor being Saxo-Norman to early medieval wares from the south-east Wiltshire/Laverstock area. The kiln assemblage is an entirely separate ceramic entity from the domestic assemblage. The pottery produced, if it is part of the Crockerton tradition, extends the known production of this ware both geographically to the south into south-west Wiltshire and north Dorset, and chronologically back, possibly to the mid-7th century. Crockerton-type wares may have been produced at several centres and may not be based within the west Wiltshire/Warminster area, as previously thought. The model of multiple centres producing similar wares within a regional tradition may be applied to Crockerton in the same way as it is for the Cheddar/Ilchester tradition (Pearson 1982). This may also suggest that the Crockerton wares at Shaftesbury fit into a pre-conquest 9th-century tradition rather than a late Saxon industry.

Metal finds

Beth Richardson

Thirty-nine metal finds were recovered from the site from 34 contexts; almost all are iron in a very corroded condition. They represent a group of mainly agricultural,

transport- or building-related items dating to the Saxo-Norman or medieval period. The most complete and potentially interesting item (Fig. 11.3) (from [177]) is a large solid central disc from which four rings radiate at 90° angles. No parallel has been found, but an obvious function would be a bridle or harness or cart-fitting. Two pieces of horseshoe from [171] (Fig. 11.1) and [249] (Fig. 11.2) can be identified in X-ray as London Type 2A ('Norman') horseshoes by their narrow width (averaging 20–22mm) and their round nail holes in rectangular slots (Clark 1995, 86–7). There are also three horseshoe nails; two (from [323] and [384] appear to have the more usual rounded Norman or early medieval 'fiddle-key' head, while the third, from [59], has an early medieval type 'rectangular expanding' head (Clark *ibid*, 87). The pottery from all these contexts is Saxo-Norman or medieval.

A complete iron object with curved terminals from [177] (Fig. 11.4) is in good condition, and may be a handle (although it is rather shallow) or, again, a bridle- or harness fitting. An L-shaped object from [397] is corroded, but in X-ray looks like a hinge pivot or an incomplete staple (Goodall 1993, 148–9). Most of the other identifiable iron objects are nails with convex and flat heads. Again all these objects are from Saxo-Norman or medieval contexts.

The rim fragment from a copper alloy vessel from [395] comes from a large vessel with a turned-over rim. Copper alloy vessels seem to have been common in the medieval and post-medieval periods, but were often melted down for re-use (Crummy 1988, 36). Other items of note are: a possible buckle fragment; three pointed objects which could be punches; a possible long needle; and pieces of strip.

Building material
Terence Paul Smith

The assemblage consisted of 88 fragments. It suggests Roman and medieval or post-medieval building activity at or near the site.

Among the larger fragments is a Roman brick fragment, with a thickness of 43mm from fill (412) in well [411]. Two Roman tegula fragments come from fills (517), in medieval pit [231/526] and (9051), in post-medieval pit [9052]; the latter is part of the flange. Also probably Roman are two fragments, one each from fill (412) and subsoil (9002); they are too fragmentary for their forms to be determined. The fabric of all these is red with black iron oxide specks and some larger red (iron oxide?) inclusions and occasional silty inclusions and bands.

From fill (46), in post-hole [47], which is part of the medieval circular ditch and post-hole structure [35], comes a corner of a peg tile. This is 15mm thick and has a circular peg or nail hole 11mm diameter at the top face and tapering to 8mm. Its fabric is orange with black and red iron oxides and a little mica. It may be of any date from the late 12th century onwards. A possible further peg tile fragment comes from fill (9035), in post-hole [9036]. Its fabric is red, fine but with a 'lumpy' appearance; a few tiny stones but otherwise no inclusions.

Iron slag
Lynne Keys

Almost 5.5kg of material identified as iron slag was examined. Most of the slag was retrieved by hand but microslags, including hammerscale, were recovered from bulk samples. Most of the slag was deposited in the fills of pits and ditches. Some smithing microslags were present but many of the slag fragments were not diagnostic of either smelting or smithing. One or two fragments, however, could have been produced by smelting activity. A large fragment in fill (272) of ditch [271] is probably a furnace bottom produced by smelting.

Wood charcoal macro-remains
Phil Austin

Charcoals recovered from the fill of 2 post-holes (sample <2> from fill (9011) in [9012], and sample <9> from fill (9042) in [9016]) associated with a circular structure, dated to the Early Bronze Age, were examined.

Sample 2 consisted of approximately 220+ fragments >4mm, the majority of which were of medium size (10–20mm). Sample 9 consisted of 135+ fragments, mostly of medium size (10–20mm). The largest fragment present measured *c.* 42mm along its longest axis. The five taxa identified are listed in Table 4 along with the absolute count for each taxon in each sample. The values recorded for oak include the quantity identified under the microscope followed by those provisionally identified by hand lens.

All five taxa are hardwoods (angiosperms) indigenous to southern England. No softwoods (gymnosperms) or alien taxa were represented. Oak is by far the most abundant taxon in both samples. The number of Maloideae fragments identified suggest that this is the most abundant of the minor taxa in each sample. However, it is uncertain if the values recorded for any of the minor taxa accurately reflect actual relative abundance.

Fragment condition in both samples was very good. Evidence of acute thermal degradation was minimal and, where present, was localised within individual fragments. No evidence of fungal degradation (e.g. fungal hyphae), insect damage or other form of biological degradation was observed. Mineral deposition was low and mostly confined to vessels only. Oak fragments exclusively came from stem or branch wood. In contrast, based on ring curvature, fragment size and the presence or absence of pith, it is believed that each of the minor taxa derived from twig or small branch wood.

Table 4: Results of charcoal analysis

Context	Sample	Taxon (qty)	Common name (UK)	Comments
9011	<2>	*Corylus avellana* (2)	Hazel	
Fill of circular structure post-hole [9012]	*in-situ* burnt post	*Fraxinus excelsior* (2)	Ash	
		Maloideae (6) Includes: *Crataegus*, *Sorbus*, *Pyrus* & *Malus*	Hawthorn, Rowan, Pear & Apple	Members of this subfamily cannot be differentiated
		Quercus sp. (210+)	Oak	The 2 native oaks, *Q. petraea* & *Q. robur*, cannot be differentiated
9042	<9>	*Corylus avellana* (1)	Hazel	
Fill of circular structure post-hole [9016]	*in-situ* burnt post	Maloideae (3) Includes: *Crataegus*, *Sorbus*, *Pyrus* & *Malus*	Hawthorn, Rowan, Pear & Apple	Members of this subfamily cannot be differentiated
		Prunus cf. P. avium (1)	Bird Cherry	
		Quercus sp. (130+)	Oak	The 2 native oaks, *Q. petraea* & *Q. robur*, cannot be differentiated

Close affinities in growth ring patterns observed in numerous oak fragments suggest that, in each sample, the charcoal derived from the same piece of timber. In both samples, fast (narrow rings lacking late wood) and slow (broad rings with extensive late wood) growth patterns were observed in oak fragments. This does not necessarily indicate that the oak in each sample derives from more than one source. It is possible that periods of fast growth and slow growth occurred over the lifetime of a single tree in relation to environmental fluctuations. Tyloses, indicative of heartwood, were present but not frequently so. This indicates that though mature heartwood was present, much of the charcoal derived from relatively young sapwood and, again, this does not rule out the possibility that the oak in each sample derived from a single timber.

The consistently large size of oak fragments suggests that physical disturbance of the remains has been minimal, if at all, and supports the probability of the remains being *in situ*. The clear predominance of a taxon long associated with structural use, oak, further adds to the probability that these fragments are the *in situ* remains of posts destroyed by fire. The complete absence of decay or any other form of biological degradation suggests that the posts were in sound condition when destroyed. The only other timber-producing tree represented that could have been used as a post is ash. However, ash is represented in only one of the post-holes and by only two fragments, both of which seemingly derive from small branch wood. It is thought unlikely that the presence of ash reflects its use for structural purposes.

All fragments of Maloideae, ash, hazel, and cherry were among the smaller fragments (<10mm) identified. It is unclear if these fragments are related in some way to the actual structure or if they were incorporated in the post fill following destruction of the post. The view favoured here is that the remains of the minor taxa are unrelated to the structure and are present because they were included as incidental debris in the back fill of the post-hole.

The range of minor taxa present, and the apparent small dimensions of the wood represented, suggest that hawthorn and hazel scrub habitats were present close to the site. If so, charring of these woods possibly occurred as the result of the purposeful gathering of fuel-wood or, alternatively, through scrub clearance. Archaeological charcoals, especially from hearth deposits, commonly include fragments with clear evidence of biological degradation, typically fungal hyphae (pers. obs.). Fuel wood does not need to be structurally sound, unlike wood used in construction, and can be gathered as dead wood from the woodland floor. This is reflected in the condition of the wood itself and the charcoal derived from it. Like the oak fragments examined, no evidence of biological degradation was observed in fragments of the minor taxa. That none of the fragments showed signs of decay is indicative that the minor taxa were also in sound condition when burned. Arguably, this supports the inference that they represent the clearance of undecayed (living) wood rather than the remains of dead wood collected for fuel.

In addition to scrub it is likely that some form of woodland, dominated by oak, was also present in the area around the site. Though oak, ash and hazel all respond well to management, from the charcoal evidence alone it cannot be determined if any form of woodland management was practised.

Animal bone

Sylvia Warman

A total of 559 animal bones (678 fragments) weighing 11.8kg from Saxon and medieval contexts were identifiable to element and species. No bone identifiable to

species was recovered from contexts of Early Bronze Age date, and the post-medieval assemblage is very small. The species identified are: *Bos taurus* (cattle); *Capra hircus* (goat); *Gallus gallus* (chicken); *Felis cattus* (cat); *Canis familiaris* (dog); *Equus caballus* (horse); *Ovis aries* (sheep); *Ovicaprid* (sheep or goat); *Cervus elaphas* (red deer); *Sus scrofa* (pig – also at least one very large individual, possibly wild boar); Charadriidae = wader (not identified to species).

The pits contained the greatest range of species; cattle, horse, sheep/goat, pig, goat, sheep, chicken, dog and wader. The wells included cattle, horse, sheep/goat, pig, sheep, chicken, cat, and red deer. It may be significant that the cat and Red deer both come from deposits in wells. Cattle bone was also identified from ditch [271/273]; a phalange, an ulna and a tooth.

Body parts

For the main domestic species (cattle, sheep or goat and pig) a range of elements are seen from both the pits and wells. The fact that cattle remains include a large proportion of head fragments and teeth as well as foot bones may point towards the early stages of butchery. However, the meat-bearing elements, more often associated with the final product, are also present, which are more indicative of domestic waste. It is interesting that a total of three fragments of cattle hyoid bone have been identified in this small assemblage. This element is in life located in the throat and is surrounded by cartilage rather than forming a joint with an adjacent bone. For this reason when the hyoid is found it is reasonable to suggest that it may reflect the disposal of cattle head/neck parts that have not been de-fleshed.

Other species, present in smaller numbers, show a more restricted range of elements. Only head elements are present from Red deer. The antler could have been shed; a mandible is also present, but no meat-bearing post-cranial bones.

Age at death

The assemblage is too small to warrant a detailed study of fusion of long bones but most specimens were from individuals assigned to adult or sub-adult age groups, with some juveniles and a small number of neonates. Cattle in particular included a few specimens from very mature or aged individuals. Very young individuals identified as new born or foetal were found in three features. Well [427] included a neonatal sheep radius, pit [202] a sheep or goat femur and metacarpal, and pit [520] contained several elements of neonatal cattle, a tibia, metatarsal and humerus which appear to be from one individual. Tooth wear was recorded following Grant (1982) for cattle, sheep or goat and pig. Only cattle and sheep or goat specimens had sufficient teeth present to record the mandible wear scores (MWS), these are: sheep/goat – 23, 26, 29, 30, 30, 30, 39; cattle – 32, 47, 47. Although very small samples, the wear stages for both sheep or goat and cattle place these individuals in the adult category and the higher scores of 30+ for sheep and 40+ for cattle indicate the presence of very mature individuals or a very abrasive diet.

Sexing

Most of the specimens could not be identified to sex. However, the antler indicates the presence of a male. Additionally a number of pig canines were identified, both male and female. The two chicken tarso-metatarsi exhibited spurs which occur in males.

Size of animals

Very few complete long bones were present in the assemblage so no measurements were taken. A very large pig pelvis from pit [355] may be from a wild boar rather than a domestic pig.

Butchery

152 out of the 559 specimens showed some sign of butchery, which is just under 30 per cent. These included cut marks, chop marks and bones that had been split vertically, suggesting the extraction of marrow.

Gnawing and weathering

Only 28 specimens showed signs of gnawing, the likely agent in all cases being dogs. No signs of rodent gnawing were observed. This suggests that the deposition was quite rapid and that scavengers only had limited access to food waste. Just over half of the specimens showed some signs of weathering; of these most were the most minor changes scored as 1 or 2 on Behrenmeyer's scale (O'Connor 2000, 44), but around 35 specimens showed more advanced weathering scoring 3 or 4. In addition to weathering, the surface of many bones was smoothed in a manner that suggested it may have been present in running water at some stage, possibly prior to any surface weathering that occurred. Material with this appearance was noted in deposits from both wells and pits.

Pathology

In general the animal bone identified did not show any signs of pathology. An exception was a fragment of a cattle femur from fill (425) of well [427]. The bone around the lesser trochanter (a projection of bone towards the proximal end which provides an area for muscle attachment) shows signs of an active infection at the time of death. Rough patches of disorganised new bone growth (extoses) are visible, as are drainage holes (cloacae). The rest of the femur is not present so it is not possible to ascertain if this infection extended into the hip joint. Three other less severe abnormalities were noted. A cow molar (M1 or M2) from well [204] shows only half the crown in wear this may be the result of the breakage of the corresponding upper tooth leading to malocclusion; this is so marked that the cow must have

Table 5: Animal bone by species

Species	NISP	Weight (g)	MNI	No. of fragments	% by NISP	% by weight	% by MNI
Cattle	294	8725	14	366	52.6	74	30.4
Horse	11	516	3	16	2	4.3	6.5
Sheep/goat	159	1372.9	11	187	28.4	11.6	24
Sheep	15	272	5	18	2.7	2.3	10.9
Goat	3	145	2	4	0.5	1.2	4.3
Pig	64	692	5	73	11.4	5.9	10.9
Dog	2	2.5	1	2	0.4	0.02	2.2
Cat	1	2	1	1	0.2	0.02	2.2
Red deer	2	51	1	4	0.4	0.4	2.2
Chicken	7	20.5	2	7	1.25	0.2	4.3
Wader	1	0.25	1	1	0.2	0.002	2.2
Totals	559	11799	46	679			

lived with this for some considerable period of time. A cattle mandible also from well [204] has a pit on the surface of the condyle. A cattle metacarpal from pit [362] has a porous patch of sclerotic bone on the proximal articulation.

Discussion

Spatial analysis/feature type

The Saxo-Norman animal bone assemblage is derived from features located within the western portion of the site; pits, wells and ditch [273/271]. The range and quantity of animal bone found in these features does not appear to be linked to their location, and there are no clear patterns. The ditch has the smallest and least varied assemblage, comprising three cattle bones. The pits and wells have a similar range of species and elements present, although the greater part of the assemblage is found in pits rather than wells. The similarity in the material from these two feature types indicates that at the time of deposition the wells are likely to have already gone out of use and were simply being filled with domestic waste as additional refuse pits.

Animal husbandry

The fusion of long bones and the tooth wear data suggest that the main domestic species were represented largely by adult or sub-adult individuals. In the case of cattle and sheep or goat, this may indicate that these animals were not reared solely for meat but wool and milk may also have been exploited. The fact that a small number of neonatal specimens of both sheep and cattle have been identified suggests a small element of stock-rearing may have taken place on site. Thus it appears that this was not an entirely consumer-based population. The pig material present shows a higher proportion of juvenile animals compared with the bovids; this is not unexpected as meat would be the sole purpose for pig rearing.

Two pig humeri show a discontinuous trait: the presence of a small hole just above the distal end of the supra-trochlea foramen. The presence of more than one individual with the same trait may indicate relatedness, that these pigs are from the same population, but the sample size is too small to draw firm conclusions.

Wild species

A very large pig pelvis from pit [355] may be from a wild boar rather than a domestic pig, based on its large size and general robustness. This would increase the number of wild species identified to three, along with the Red deer and wader. It is interesting that the deer remains appear to be from a Red rather than a Fallow deer, as the latter is believed to be a Norman introduction (Sykes 2004, 81).

Regional comparison

The most suitable assemblage for comparison is that from Trowbridge examined by Coy (1993). Period 4 at Trowbridge is comparable to the Saxo-Norman period at Shaftesbury, the main difference is that sheep or goat are the most numerous taxa at Trowbridge while cattle are the most numerous at Shaftesbury. Both the Trowbridge and Shaftesbury assemblages include small numbers of cat, dog and horse. The Trowbridge assemblage has a greater range of wild species than is seen at Shaftesbury, in particular Fallow and Roe deer are present in addition to Red deer, as well as hare. The Trowbridge assemblage is around three times larger than the Shaftesbury assemblage. The faunal evidence at Trowbridge is seen as reflecting the establishment of a manorial settlement, based on the use of domestic stock but with an element of game (*ibid*, 136). The assemblage from Shaftesbury reflects a more restricted range of species possibly reflecting a lower status, partly self-sufficient, settlement with less emphasis on the hunting of wild resources.

The assemblage appears to be largely domestic, with cow sheep or goat and pig present. Pigs are killed at a younger age for meat, while the older cattle and sheep may have been used for the production of milk and wool. There is some evidence for stock rearing on site in terms of the presence of neonatal cattle and sheep. The range

of elements present show neither a bias towards the early stages of butchery or the type of waste expected from domestic households. Very limited use is made of wild resources. These observations when taken together are suggestive of a partially self-sufficient settlement.

Animal bone (wet-sieved)
Alan Pipe

In total, 118 fragments were recovered from seven samples, all from the Saxon kiln or pits. The bones were generally in a poor state of preservation, with sufficient surface damage to obscure surface morphology or tool marks. Fragmentation was severe with virtually all of the bones less than 25% complete, and less than 10mm in greatest length. The assemblage was dominated numerically by very fragmented bones assignable only to the approximate category sheep-sized mammal. There was no evidence for gnawing, butchery, working or pathological change, but some indications of burning.

The following were identified: elasmobranch fish, possibly dogfish family Scyliorhinidae; herring family Clupeidae; eel *Anguilla anguilla*; ox *Bos taurus*; a small mammal rib from an animal of mouse or vole size; shell fragments of common/flat oyster *Ostrea edulis*; a bird toe phalange; a chicken-sized vertebra; a sparrow-sized adult passerine bird

This material derives largely from post-consumption waste probably associated with the consumption of common or flat oyster, ?dogfish, herring, eel, chicken, mutton and beef. The occasional recovery of small birds and mammals probably represents chance casualties of local fauna.

Plant remains
Kate Roberts

Thirteen bulk samples, from Early Bronze Age post-holes, the Saxon kiln, Saxon pits and a medieval ditch, were selected for study, based on the quantity and variety of their plant remains. Preservation of charred material varied; generally only small to moderate amounts of charred plant remains were present, particularly in the prehistoric samples. Some of the Saxon samples, particularly sample <26> from kiln fill (76), contained larger quantities of plant remains. The charred plant remains did not suffer greatly from fragmentation, and some of the surface texture was still visible.

Cereal production and consumption

Early Bronze Age

The samples from the Bronze Age circular structure post-holes, while only containing small amounts of charred plant remains, did contain enough to consider the cereal consumption on this site. Three grains of emmer wheat (*Triticum* cf. *dicoccum*) and of barley (*Hordeum vulgare* ***s.l.***) were present in these samples, together with small quantities of associated chaff. There was also some evidence of oats, in the form of a single fragment of oat awn. The single free-threshing wheat grain (*Triticum aestivum/turgidum/durum*) is unusual in the Bronze Age, although rachis fragments from free-threshing wheat have been found in Bronze Age assemblages in the area in samples at Flagstones, Maiden Castle Farm and Middle Farm (Straker 1997, 185). The identification of emmer wheat (*Triticum dicoccum*) is based on the shape of the grain, but none of the chaff was well preserved enough to be identified beyond emmer/spelt wheat (*Triticum dicoccum/spelta*) and so could not be used to support this identification. Both emmer wheat (*Triticum dicoccum*) and hulled barley (*Hordeum vulgare* ***s.l.***) have been found in Bronze Age samples across Britain (Greig 1991, 302). Since such small quantities were found in these post-holes, it is unwise to comment on which crops were most common in the Bronze Age on this site. Similarly the small quantities of charred material found in these samples mean that it is impossible to comment on the processing of this material. All it is possible to say is that a variety of cereals were being consumed in the area of this circular structure. It is probable that wheat and barley would have been used in making pottages (Straker 1997, 188).

The charred non-cereal remains found in these samples are unfortunately catholic in their environmental preferences and so do not point to a particular habitat in which the crops were grown. Vetch type plants, as found here, were also found at Flagstones, Maiden Castle Farm and Middle Farm (Straker 1997, 185). In the Coppice Street, Shaftesbury samples, preservation was not good enough to allow a high level of identification; however, the weed flora has parallels with other Bronze Age sites (Greig 1991, 304), with occurrences of corn spurrey (*Spergula arvensis*), goosegrass (*Galium* spp.) and vetches (*Vicia/Lathyrus* spp.) being present, as they were here.

Saxon

In the Saxon phase, free-threshing wheat (*Triticum aestivum/turgidum/durum*) was the most common of the cereal crops, but hulled barley (*Hordeum vulgare* ***s.l.***) was also common as well as occasional examples of rye (*Secale cereale*), oats (*Avena* spp.) and possible spelt wheat (*Triticum* cf. *spelta*). The presence of spelt wheat (*Triticum spelta*) could be due to residuality although it is possible that this crop was still being cultivated in the Saxon period. Free-threshing wheat (*Triticum aestivum/turgidum/durum*), hulled barley (*Hordeum vulgare* ***s.l.***), rye (*Secale cereale*) and oats (*Avena* spp.) were all found at Wareham in Dorset (Monk 1977, 76) and all except rye (*Secale cereale*) were found at Chantry Fields, Gillingham (Ede 1992, 121–5). Wheat, as it was here, was often the dominant cereal crop in the Saxon period in Britain (Greig 1991, 314–17), and barley (*Hordeum vulgare* ***s.l.***), oats (*Avena* spp.) and rye (*Secale cereale*) were also all found. Green, in his work on Saxon archaeobotany in Wessex (Green 1994, 55–64) also points to a similar range of crops being present.

The weed seeds found in these samples were mainly from arable weeds, with particularly large numbers of seeds from stinking mayweed (*Anthemis cotula*) and scentless chamomile (*Tripleurospermum inodorum*). These are both typical crop weeds. Other potential crop weed remains came from corncockle (*Agrostemma githago*), vetch/tare/vetchling (*Vicia/Lathyrus* spp.), clover/medick (*Trifolium/Medicago* spp.) and black bindweed (*Fallopia convolvulus*). Grasses, including rye-grass/brome (*Lolium/Bromus* spp.) and meadow-grass/cat's-tail (*Poa/Phleum* spp.), were present. It is possible that these were also crop weeds, although there were also remains of possible ribwort plantain (*Plantago* cf. *lanceolata*), a possible grassland weed, present in sample <26> from kiln fill (76) and so this material could represent the use of hay meadow material as a fuel.

The small quantities of chaff and grain present in these samples mean that it is impossible to deduce how the crops were stored or processed, since too little has survived.

In the Saxon period free-threshing wheat (*Triticum aestivum/turgidum/durum*), rye (*Secale cereale*), hulled barley (*Hordeum vulgare* ***s.l.***) and oats (*Avena* spp.) were used in pottages, bread and beer (Wilson 1991, 197, 235 and 369).

Medieval

This sample contained single grains of hulled barley (*Hordeum vulgare* ***s.l.***) and possible spelt wheat (*Triticum* cf. *spelta*) and a single indeterminate cereal culm node (Cerealia indet.). Again, it is possible that spelt wheat was being cultivated in the medieval period, but it is more likely that this material was residual. Cereals were used for the same purposes in the medieval period as they were in the Anglo-Saxon, for pottages, bread and beer (Wilson 1991, 199, 238 and 372). The charred wild plant remains in this sample were very similar to those found in the Anglo-Saxon period and were non-specific with regard to the local growing environment.

Nuts

Charred hazelnut shell (*Corylus avellana*) was found in both the Bronze Age and Anglo-Saxon period samples. Only small quantities were found in both cases. Hazelnut (*Corylus avellana*) has also been found in Saxon samples at Chantry Fields, Gillingham (Ede 1992, 121) and in Bronze Age samples from Tolpuddle Ball (Hinton 1999, 203).

Fuel

The samples from the Saxon kiln could contain a range of fuels. Pottery kilns from other periods have often been found to contain a range of material that may have been used as a fuel, often using what was locally available, for example sedges and crop processing remains in medieval Ely (Ballantyne in prep). Moffett (1994, 58) suggests that in some Anglo-Saxon corn-drying kilns rye chaff was being used as a fuel or possible tinder. Sample <26> contained a variety of crop-processing waste, including rachis fragments from bread wheat (*Triticum aestivum/compactum*), barley (*Hordeum vulgare* ***s.l.***) and rye (*Secale cereale*), oat (*Avena* spp.) florets and indeterminate cereal (Cerealia indet.) culm nodes. This sample also contained large quantities of charred stem material. These stem fragments were very thin, so it is unlikely that they were from cereals, and may have been from wild grasses. The charred root or bud material is another possible fuel. If this material represents the roots of a plant, it is likely that it was being harvested by being pulled up, rather than being cut. It is not clear whether this material came from grasses or sedge-type plants or any other plant. The stem material and possible grassland plants might point to the use of hay, perhaps as a kindling fuel in this kiln, as might the possible root material.

The local environment

Most of the non-charred plant material in these samples appears to be intrusive. This is particularly true of the Early Bronze Age samples where a variety of obviously modern material was present, including modern grasses (Poaceae indet.). This was also mostly true of the samples from the Saxon phase of the site. It is possible that the sample from the flue fill (148) may have contained some non-intrusive, archaeological waterlogged plant remains. These plant remains were completely different from those found in the other samples and were dominated by seeds from plants of damp or wet ground, including water-plantain (*Alisma plantago-aquatica*) celery-leaved crowfoot (*Ranunculus sceleratus*), and gipsywort (*Lycopus europaeus*). If these plant remains were authentically preserved, it might suggest that this kiln was located within a damp area of ground, although this would be a strange location for a kiln. There were also intrusive uncharred plant remains in this sample, and so it is possible that all of the uncharred plant material was intrusive. The charred weed seeds from all phases of this site were mainly catholic in their tastes and so do not provide any useful information about the environment in which the crops were grown.

Discussion and Conclusions

Early Bronze Age

The evidence from the Early Bronze Age timber structure is more consistent with it being a ceremonial monument rather than a roundhouse, which are the two possible interpretations. The reasons for this relate to its date, the lack of associated features, some aspects of its form, the nature of the deposits in its post-holes, and the size of the fire that destroyed it.

According to Brück (1999, 145) the first archaeologically visible roundhouse settlements in southern England appear in the Middle Bronze Age (*c.* 1500–1100 BC). These have a package of associated elements, even

if all of these are not always present: several roundhouses; a few pits; a pond; one or two four-post structures (usually considered to be raised storage structures); an enclosure around the roundhouses; location within a field system; storage or cooking vessels; loomweights; quernstones; and bronze tools such as knives or awls. The architecture is to a degree standardised, even if there is variation, and space appears to be organised according to defined principles. In her view (*ibid*), the association of the various elements of these settlements, together with the architectural standardisation, demonstrates that a defined model for settlements formed part of the cultural repertoire of the Middle Bronze Age.

The date of the structure on this site is earlier than the range given by Brück (1999), but it is firmly within the central range of timber circles: radiocarbon dates directly associated with the circles are in the range 2800–1000 BC (Gibson 2005, 62), making it an exceptionally long-lived class of monument.

This structure lacks all of the characteristic associations listed by Brück (1999), and this cannot easily be dismissed as truncation, given the survival of the post-holes and the heat-affected surface. All the Early Bronze Age material found on site was directly associated with the circular structure. No material of this period was found anywhere else on site, not even as residual elements in later features. This indicates the focus of activity during this period was limited to a single structure in isolation, with no archaeological indicators of domestic activity, such as pits, middens and enclosure ditches. Although negative evidence, this isolation and the absence of typically domestic features or deposits supports the case that it was not a dwelling.

While its size and shape are normal for a roundhouse, the missing post-holes towards the front, not caused by truncation, would need some allowance. More problematic is that the porch-like structure at the front would have a very narrow doorway, and it would have to be assumed that the inner posts of the double post-holes did not, in fact, point together to meet at around waist level, making the door not functional. The size of the structure is near the small end of the range for timber circles, but there are a number this size and some even smaller (Gibson 2005, 155–73). For example, the diameter of the circle at Charnham Lane, Hungerford, Berkshire was 6m (Ford 1991); that at Conygar Hill, Dorchester, Dorset, was 8m (Woodward and Smith 1987); while the 'seahenge' circle at Holme-next-the-Sea was also 6m across (Brennand and Taylor 2003), although there are doubts whether the latter should be classified as a timber circle (Gibson 2005, 141).

The cultural material within the features was all or very largely placed intentionally rather than chance losses. While 'structured deposits' undoubtedly do occur in roundhouses, the exclusively or nearly exclusively placed nature of these finds supports the case that the role of the structure was predominantly ceremonial, with no detectable domestic activities taking place there. Structured deposition at other timber circles is commonplace, including Durrington Walls, North and South Circles (Richards and Thomas 1984), Woodhenge (Burl 1991), and the Sanctuary (Pollard 1992). Lastly, the likely size of the fire seems excessive for the accidental burning of a house, but not for a statement-making finale of something with cosmic significance.

Several aspects of the structure do not affect the case for either interpretation. The south-east orientation is consistent with both. Despite their domestic nature, roundhouse settlements very often lack midden deposits (Brück 1999, 149). The short lifespan and single construction phase is also not significant in this respect. Roundhouse settlements often have a single phase, which, with the lack of midden material, has been interpreted by a number of authors as implying a short life: Brück (*ibid*, 149) has developed this into a single generation model, comparing the lifecycles of the houses with those of its occupants. On the other hand, the creation and destruction of ceremonial monuments, not just their use once they had been made, may have been of key importance to their significance. Many ceremonial monuments may therefore have had a relatively short period of use, unless there were further additions or modifications.

Evidence of any form of settlement is rare before the Middle Bronze Age, and it must be assumed that there was in general a high level of mobility, albeit with varying degrees of longevity of occupations (Whittle 1997; Thomas 1999; Pollard 1999). The evidence that exists is most frequently in the form of artefact scatters, especially flint, followed by pits with occupation debris, whether or not this had been purposefully selected for deposition (Thomas 1999). Structural remains are very infrequent: Darvill (1996) lists only 15 sites in the south-west with possible domestic buildings dating from the early Neolithic to Beaker periods, including early Neolithic rectangular structures. Pollard (nd, 70) notes that, in Wessex, settlements are not uncommon both in the Beaker period, as artefact scatters or pits, and following the emergence of Deverel-Rimbury and related pottery traditions. Between these periods, in the full Early Bronze Age from *c.* 1900 to 1600 BC, they are 'obstinately invisible'.

Two circular late Neolithic structures with central four-post settings have been found in Cranborne Chase, on Wyke Down (Green 2000). While they produced burnt daub, other evidence is more indicative of a ceremonial nature: they were adjacent to the Wyke Down 2 Henge; associated with Grooved Ware; and architecturally similar to late Neolithic timber settings in the Stonehenge landscape (Pollard nd). Structures for habitation may be more typically represented during the later Neolithic and Early Bronze Age by stake-hole clusters, such as at Firtree Field, Cranborne Chase (Barrett *et al.* 1991), left by lightweight temporary dwellings.

Although the sample size of two is inadequate to be sure, it is likely that oak was used for all the posts, given that it was used in both the post-holes where the charcoal was analysed. Oak is a very suitable wood for a structure, and it is reasonable to suppose that there would have been selection of the wood, rather than opportunistic use of the nearest to hand, whether the structure is considered to have had a ceremonial or a functional use. At 'seahenge' both the circular palisade and the central inverted tree stump were oak (Brennand and Taylor 2003).

The distribution of artefacts shows that the focus of the placing of cultural deposits was towards the front of the structure. More of the scrapers, debitage, and grog-tempered pottery were recovered from the post-holes of the square arrangement, especially, and those at the ends of the semi-circle rather than from those in the middle of the semi-circle. There is no discernible difference between the north-east and south-west halves in terms of the artefact distribution, but there were more pits in the north-east half.

The technology used to make the flint scrapers is characteristic of that current in the Neolithic to the Early Bronze Age, which is consistent with the structure's date. This technology is relatively sophisticated and would have been used by a community that relied heavily on flint tools for all manner of daily activities. There has been very deliberate selection of the retouched flint pieces, the tools, which are all scrapers, either exclusively so or having other functions as well. This selection presumably reflects an association of the place or the structure with the processing of hides, which is believed to have been the main function of scrapers. The reason for this association is not clear. The architecture of the structure, the manner of its destruction, and the highly structured nature of the deposits make it very probable that this is a ceremonial monument rather than having anything to do with hide processing on a practical level. However, that is not impossible, as, for example, it would have been possible to stretch hides between the posts.

While the scrapers were similar in form they have been made from a variety of raw materials. They are tools used for what must have been a routine activity, but are deposited in a manner that was almost certainly intentional and symbolic rather than random and accidental. It may be that the pieces deposited were contributed by different individuals within a community that used the structure, or by different groups of people that came together at that place for a number of possible social, ceremonial, or economic reasons. The rather crude scraper in [9016] could have been contributed by a younger, more inexperienced, knapper.

The abraded nature of pottery indicates that the vessels represented had not been broken immediately before they entered the post-hole, but had been circulating for some time. This is consistent with the evidence that deposition was after the structure had burnt down, and not at the time that the structure was erected: the pottery is almost all from post-pipes where these were recorded separately. This suggests that pottery sherds may have either accumulated on the surface around the structure during the period that the structure was in use, or they were introduced from some other place where they had been accumulating on the surface. They were then incorporated into the holes left when the posts burnt, and any unburnt remainder rotted. While the quantity of pottery is not large, there is a reasonable number of sherds in relation to the size of the post-pipe holes. This means that either there was a relatively high quantity of pottery around the structure, or there was control exercised over the deposition process.

Only a tentative suggestion is possible on the evidence here, but this control could be either the purposeful placement of the pottery sherds themselves or, more likely, a small quantity of midden material containing the sherds. This placement would have been either in the holes left by the burnt-out posts, or against the burnt stumps if they survived above ground.

The treatment of prehistoric midden material has received some attention in recent years, with the realisation that in many cases there were careful strategies of accumulation and not just casual disposal (e.g. Hill 1995; Needham and Spence 1997; Thomas 1999). It is reasonable to suppose that its cultural origins may have given it a special significance to prehistoric communities. It would therefore have had a resonance to these groups that meant they treated it in a different way from that of more recent, and modern, people: it was not 'rubbish' as we understand it. It appears to have been used in specific and intentional ways, and its cultural association or references is presumably relevant to this. As it would have been accumulated over a length of time it may have acted as a symbol for the community's continuity (Pollard nd, 67). Conceivably it was used to seed or fertilise places or monuments in some esoteric sense.

The use of midden material in this way would also help to explain the plant remains in the bulk samples, which contain crop grains and chaff. As with the pottery sherds, the plant remains could have accumulated around the structure, either featuring in the ritual or just being consumed by the participants, or could have come from elsewhere.

It is not clear whether the deposition process for all three main classes of artefacts recovered from the post-holes, flint scrapers, pottery, and flint debitage, was the same or not. It is possible that they were, but it seems more plausible that the pottery, and probably the debitage, were deposited via midden material, whereas the scrapers were placed individually.

There is little doubt from the charcoal in the post-holes, and the heat-affected area approximately covering the structure, that its life ended in flames. The charcoal evidence suggests that smaller branch material from

hardwood species other than oak was included in the fire. The continuous presence of the burnt area across the entire central area of the structure, and not just around the posts, indicates that the fuel for the fire covered the whole of the internal area. The discolouration was such that this must have been a large and hot fire, and would have required much more fuel that the posts themselves provided, although clearly it is not known how much more wood there was to the structure than that.

The most likely scenario is that, within a few years of it being built, a bonfire of brushwood was collected from the surrounding area and piled up inside the structure, and then intentionally set alight. The concept of an intentional destruction of a relatively young ceremonial monument by fire is consistent with the evidence from a number of other sites. The size of the fire indicates that this would have been a notable event, and memory of it may have been long-lasting and even transmitted down to following generations. The size of the fire seems to have been greatly in excess of what would have been needed just to destroy the posts and structure itself. This supports the interpretation that it was done as a peaceful ceremonial act by the group that created and used the structure, rather than the warlike torching of one group's monument by another.

The semi-circle of posts may have been permeable, in the sense of having gaps between the posts, or impermeable, if they were filled in. This may have been with wattle panels, boards, or perhaps, more appropriately in this case given the deposition of the scrapers, hides. The notion of screening of, and restricted access to, timber circles and other monuments of a similar date, especially henges, has been proposed by many authors (Gibson 2005, 112–17). It divides people into tiers: those who were excluded, those who were permitted, and those who controlled access.

The square arrangement of posts seems to have formed a low feature, about 1m high or so. This is implied by the angle of the post-pipes of the inner posts of the two double post-holes, which would have met at that height. Clearly, it is not possible to know whether the feature was built higher than this, but if not it may have had the appearance of a low platform or a table. This could have been used by the celebrants, perhaps as an altar. It is possible that it was an exposure platform for the dead, although no human remains were recovered from the site. The central square post setting in the circle at Ballynahatty in County Down has been interpreted as a similar low platform, possibly used for exposure of bodies (Hartwell 2002).

What role the small number of pits towards the rear of the semi-circular area played is unclear. It seems likely that they were of significance at one point in time only, as they were not for posts and did not form part of the structure itself.

The architecture of the structure seems to involve a partially enclosed space within the semi-circle, with a low platform in front of this area. The space within the semi-circle could have been where people gathered to witness whatever event was occurring, which would seem to have been focused on the low platform. Alternatively, the space delimited by the semi-circle may have been an area from which all or certain people were excluded.

A number of timber circles have associated burials, but not enough to claim this a principal function, and they are often in secondary contexts. Their absence in this case is therefore not unusual. The large Wessex sites have evidence for feasting, but this is less common on the smaller sites, and feasting is likely to have been only one part of the rituals.

It is difficult to determine the functions performed by timber circles, beyond the generic terms 'ritual' or 'ceremonial' (Gibson 2005, 99). Without doubt many ceremonial monuments of this period had astronomical alignments (Ruggles 1998), and celestial movements were important to these communities, but the implication that the monuments had complex calendrical functions is probably stretching the evidence. There is insufficient evidence on this site to identify alignments, other than the south-east orientation of the structure. More significant would have been the role of the practice of ritual in marking the annual cycle, maintaining social relations and social ordering, and ensuring the cohesion and continuity of the community.

Early to Middle Saxon period

The small quantity of early to middle Saxon pottery, present within late Saxon and medieval features on the site, indicates that there was some occupation within the local area around the 5th to 6th centuries. This predates the creation of the burh of Shaftesbury, not far to the west, in the late 9th century by a considerable period. However, the advantageous position of the site of the burh may have attracted occupation there at an earlier date (Keen 1999).

The kiln is likely to date to the late 8th century or the 9th century, so is also very early in comparison with the known development of Shaftesbury. The pottery in the kiln assemblage has the micaceous fabric that is typically associated with the Crockerton-type wares, which have a central and western Wiltshire distribution. While closest to Crockerton-type H, defined by Smith (1997, 21) at Warminster, this particular type has not been recognised elsewhere: it is suggested the term 'Crockerton-type' or 'Shaftesbury Crockerton-type' should therefore be used for this assemblage.

No other late Saxon or Saxo-Norman kiln sites have yet been found producing Crockerton-type wares. It also establishes the production of Crockerton-type wares at Shaftesbury for the first time. The other known centre of production is Crockerton, 2km south of Warminster and 19km to the north of the site. This indicates that there were multiple production sites within this region that were working within the same ceramic tradition,

although contemporary production at both sites has not yet been proven.

The considerable significance of the kiln is due to its very early date for pottery of Crockerton type; its geographical position, which establishes a new production centre for this pottery; and the recognition of a fabric which is distinct from those previously described, if similar to Crockerton-type H.

The kiln was earlier than the archaeologically visible activity of the late Saxon to medieval periods, and so was probably an isolated feature, even though its position close to one edge of the investigated area reduces confidence in this. There would be advantages in keeping a pyrotechnic industrial activity like firing pottery separated from areas of domestic occupation, but a short walk from it. The fragile unfired pots would not have been transported far from where they were made, so the potters would have lived and worked nearby. This raises the possibility that there was occupation not far from the historic centre of Shaftesbury before the creation of the burh, although it does not inform us about the size of any such settlement.

Late Saxon and early medieval periods

There was continuity of land use on the site from the late Saxon into the medieval periods, with the same division into domestic and agricultural areas. Change is evident but progressive, with a decline in the domestic activity, which would almost certainly have been replaced in that part of the site by an expansion of the agricultural area, although this is inference rather than demonstrated. Imprecision in the dating of the features makes it hard to identify when or how quickly this happened, but the evidence suggests it was progressive and underway by the beginning of the medieval period.

Assuming that the digging of pits and wells is a good proxy for the intensity of settlement and without major chronological or other bias, occupation was at its height towards its first appearance, within the 100–130 years before the conquest. It subsequently tailed off until the middle or end of the 13th century, but the area may have already lost its urban or suburban character by the early 12th century, and by the 13th century it may have declined to something like a farmstead, beyond the now retrenched town limits.

The domestic activity in the western side of the site is a considerable distance, about 250m, from the centre of the medieval town. It appears to represent the eastern extent of Shaftesbury at that time, although it is possible that it was part of an outlying settlement. The topography and presence of the abbey limited the town's potential for expansion to the west, north and south, and the development to the east, identified on the site, may have been limited to an area bordering a road. Expansion in the late Saxon period would therefore have been restricted in direction, and either fan-shaped or linear out to the east.

As discussed above, several authors have suggested that the settlement of Shaftesbury originated before Alfred's burh (Haslam 1984; Keen 1999; Penn 1980). The timing and pace of the development of urbanisation across the region imply that the earliest likely date for this is still within the 9th century, and that the town would probably not have achieved a significant size before the burh was created around the AD 880s. Following the relocation of the occupied area from the burh to the east side of the abbey, the growth in population was presumably driven more by the needs of the abbey, and by the requirement for urban functions, rather than the need for a defensive centre.

The urban functions, and the relatively large size of the town, in the second quarter of the 10th century are evident from the reference to the town as a 'port' with two moneyers. The continuing royal patronage of the abbey through the 10th century would also have provided a significant impetus for growth of the town population.

The inferred vulnerability of Shaftesbury to the Danes at the turn of the millennium is a possible, although speculative, reason for the town's growth to be reversed,. Somewhat later, and after that threat had been lifted, the Domesday Book entry records a significant reduction in the number of households between the start of the reign of William I and AD 1086.

Assuming that the remains on the site represents the eastern extent of Shaftesbury, rather than an outlying settlement, the maximum area occupied would be very considerable by contemporary standards, even if the expansion was just along a narrow eastward corridor. The archaeological evidence in relation to both the early expansion and subsequent contraction, with the maximum being achieved during the 10th century or the first half of the 11th century, is consistent with the implications of the documentary sources. Nevertheless the size of the occupied area, and the very rapid enlargement to achieve it, are notable.

Arguably the reasons for the extent of the expansion are harder to explain than those for the contraction. That may have been an adjustment down from a size that was not sustainable under the prevailing regional economic and social conditions. It was probably linked to specific local factors rather than general widespread ones: this was not a period of widespread retrenchment or recession across the country.

While the evidence is limited, it appears that there was a relatively sharp division between the areas of the site used for domestic occupation and agriculture. Estimates for the density of occupation are necessarily imprecise, but even when occupation was at its greatest, it would appear to have been less crowded than fully urban conditions: it could be regarded as suburban.

The ditches within the settlement area provide evidence of its organisation, and show that there were

enclosures and trackways. The enclosures appear to have been larger than individual house plots. The layout persisted essentially intact throughout the period of occupation and the alterations to boundaries were minor in nature. The finds assemblage shows that the occupants were not of high status, using a narrow range of utilitarian pottery and having a diet restricted to domesticated animals. The balanced spread of age and body parts represented by the animal bone means that they participated in both production and consumption and were relatively self-sufficient. Economically, this was not a group that was particularly specialised, compared to more urbanised populations.

The low number of sherds of Crockerton H ware in the domestic assemblage suggests that production in the Crockerton tradition had ceased by the time of the domestic activity on the site. This is consistent with the inferred date of the kiln relative to the date of the pottery assemblage from the domestic activity. However, the dominance of Cheddar C ware in the assemblage suggests that this may have been produced locally, and some support for this is given by the indications of 'kiln group' material within this assemblage. It is therefore possible that pottery production continued in the local area, but in a different ceramic tradition.

The large pits were variable in the quantities of their finds, with both rich and relatively sparse examples. The smaller ones were more consistent, with pottery and bone well represented in most of them, and only a smaller number with large quantities or with very little. The smaller ones seem to have been used for waste disposal more routinely, even if this was still probably on an opportunistic basis, when they were available or needed to be backfilled.

The exact location of the iron-working is not known, but as with firing pottery, it might sensibly be located outside the area of domestic occupation. It is unclear whether the land use of the agricultural area of the site was affected by its being in the hinterland of Shaftesbury. The longevity of some, at least, of the field boundaries in the centre of the site, established in the late Saxon period, is illustrated by the medieval and post-medieval boundary ditches that also mark some of them.

The two medieval structures fit the agricultural land use for this part of the site. The probable barn was in a plot that may have been delimited for specific agricultural tasks since the late Saxon period. The circular structure is more unusual, and may have been something similar to a dovecote.

Acknowledgements

The author and AOC Archaeology would like to thank Tesco Stores Ltd for commissioning and funding the fieldwork, analysis and publication. The author would also like to thank the fieldwork team.

Charlotte Thompson is grateful to Lorraine Mepham for her assistance during the production of the prehistoric pottery report. Lucy Whittingham is similarly grateful to Lorraine Mepham for her invaluable help and guidance.

BIBLIOGRAPHY

AC Archaeology, 1996 *The Proposed Development of Land for a Retail Store at Christy's Lane, Shaftesbury: An archaeological desk-based assessment*. Unpublished Report, AC Archaeology.

AOC Archaeology, 2003a *Coppice Street, Shaftesbury, Dorset, Archaeological Evaluation: Written Scheme of Investigation*. Unpublished Report, AOC Archaeology Group.

AOC Archaeology Group, 2003b *An Archaeological Evaluation Carried Out At Coppice Street, Shaftesbury, Dorset*. Unpublished Report, AOC Archaeology Group.

AOC Archaeology Group, 2003c *Coppice Street, Shaftesbury, Dorset, Archaeological Excavation: Written Scheme of Investigation*. Unpublished Report, AOC Archaeology Group.

AOC Archaeology, 2005 *Coppice Street, Shaftesbury, Dorset: Post-excavation Assessment*. Unpublished Report, AOC Archaeology Group.

AOC Archaeology, 2006 *Coppice Street, Shaftesbury, Dorset: an Archaeological Excavation Archive Report*. Unpublished Report, AOC Archaeology Group.

Ballantyne, R.M., in prep. *The plant remains at Broad Street, Ely*. Unpublished Report, CAU.

Barrett, J., Bradley, R. and Green, M. (eds), 1991 *Landscape, Monuments and Society: The Prehistory of Cranborne Chase*. Cambridge: Cambridge University Press.

Brennand, M. and Taylor, M., 2003 'The survey and excavation of a Bronze Age timber circle at Holme-next-the-Sea, Norfolk, 1998–9', *Proceedings of the Prehistoric Society* **69**, 1–84.

British Geological Survey, 2003 *Geological Assessment – Standard*. Unpublished Report, BGS.

Bronk Ramsey, C., 2005 'OxCal v.3.10: A radiocarbon calibration and analysis program', Oxford: Oxford Radiocarbon Accelerator Unit.

Brück, J., 1999 'Houses, lifecycles and deposition on Middle Bronze Age settlements in Southern England', *Proceedings of the Prehistoric Society* **65**, 145–66.

Burl, H.A.W., 1991 *Prehistoric Henges*. Princes Risborough: Shire.

Clark, J. (ed.), 1995 *The Medieval Horse and its Equipment c. 1150–c. 1450*. Medieval Finds from Excavations in London No. 5, HMSO.

Cleal, R.M., 1995 'Pottery fabrics in Wessex in the fourth to second millennia BC', in I. Kinnes and G. Varndell (eds), *Unbaked Urns of Rudely Shape: Essays on British and Irish Pottery for Ian Longworth*, 185–194. Oxford: Oxbow Monographs in Archaeology.

Cleal, R.M., 1997 'The earlier prehistoric pottery', in Smith *et al.* 1997, 224.

Coy, J., 1993 'Animal bone', in Graham and Davies 1993, 127–36.

Crummy, N., 1988 *The Post-Roman Small Finds from Excavations in Colchester 1971–85*. Colchester Archaeological Report 5.

Darvill, T., 1996 'Neolithic buildings in England, Wales and the Isle of Man', in T. Darvill and J. Thomas (eds), *Neolithic Houses in Northwest Europe and Beyond*, 1–12. Oxford: Oxbow Books.

Ede, J., 1992 'Carbonised plant remains', in M.J. Heaton, 'Two mid-Saxon grain dryers and later mediaeval features at Chantry Field, Gillingham, Dorset', *Proceedings of the Dorset Natural History and Archaeological Society* **114**, 121.

Ford, S., 1991 'An early Bronze Age pit circle from Charnham Lane, Hungerford, Berkshire', *Proceedings of the Prehistoric Society* **57 (2)**, 179–81.

Ford, S., 2004 'The flint', in A. Taylor and S. Preston, 'The excavation of a Middle Bronze Age settlement at Hodge Ditch, Chard Junction Quarry, Thorncombe, Dorset', 36–38. *Proceedings of the Dorset Natural History and Archaeological Society* **126**, 27–42.

Gale, J., 2003 *Prehistoric Dorset*. Stroud: Tempus.

Gardiner, J.P., 1985 'Intra-site patterning in the flint assemblage from the Dorset Cursus, 1984', *Proceedings of the Dorset Natural History*

and Archaeological Society **107**, 87–93.

Gibson, A., 2005 *Stonehenge and Timber Circles*. (2nd edn) Stroud: Tempus.

Goodall, I.H., 1993 'Iron door, window and furniture fittings', in S. Margeson, *Norwich Households: The Medieval and Post-Medieval Finds from Norwich Survey Excavations 1971–1978*. East Anglian Report **58**, 138–55.

Graham, A.H., and Davies, S.M., 1993 *Excavations in Trowbridge, Wiltshire, 1977 and 1986–1988: The Prehistoric, Saxon and Saxo-Norman Settlements and the Anarchy Period Castle*. Wessex Archaeology Report No. 2, Wessex Archaeology.

Grant, A., 1982 'The use of tooth wear as a guide to the age of domestic ungulates', in B.G. Wilson, C. Grigson and S. Payne, *Ageing and Sexing Animal Bones from Archaeological Sites*, 91–108. Brit. Archaeol. Rep. British Series **109**. Oxford: British Archaeological Reports.

Green, F.J., 1994 'Cereals and plant food: a reassessment of the Saxon economic evidence from Wessex', in J. Rackham (ed.), *Environment and Economy in Anglo-Saxon England: a review of recent work on the environmental archaeology of rural and urban Anglo-Saxon settlements in England. Proceedings of a conference held at the Museum of London, 9–10 April, 1990*. CBA Research Report No. **89**.

Green, M., 2000 *A Landscape Revealed: 10,000 Years on a Chalkland Farm*. Stroud: Tempus.

Greig, J., 1991 'The British Isles', in W. van Zeist, K. Wasylikowa and K.-E. Behre (eds), *Progress in Old World Palaeoethnobotany*, 299–334. Rotterdam: Balkema.

Hartwell, B., 2002 'A Neolithic ceremonial timber complex at Ballynahatty, Co. Down', *Antiquity* **76**, 526–32.

Haslam, J., 1984 *The Anglo-Saxon Towns of Southern England*. Chichester: Philimore.

Hearne, C.M. and Birbeck, V., 1999 *A35 Tolpuddle to Puddletown Bypass DBFO, Dorset, 1996–8 – incorporating excavations at Tolpuddle Ball 1993*. Wessex Archaeology Report No. 15.

Hill, J., 1995 *Ritual and Rubbish in the Iron Age of Wessex*. Brit. Archaeol. Rep. British Series, No. 242. Oxford: British Archaeological Reports.

Hinton, P., 1999 'Charred plant remains', in Hearne and Birbeck 1999, 203–10.

Jervoise, E., 1954 'The Manor of Barton, Shaftesbury', *Proceedings of the Dorset Natural History and Archaeological Society* **76**, 67–73.

Keen, L., 1977 Late Saxon pottery from St Peter's Church, Shaftesbury. *Proceedings of the Dorset Natural History and Archaeological Society* **99**, 129–30.

Keen, L., 1999 'Introduction', in Dorset County Council *Studies in the Early History of Shaftesbury Abbey*. Dorchester.

Keynes, S., 1999 'King Alfred the Great and Shaftesbury Abbey', in Dorset County Council *Studies in the Early History of Shaftesbury Abbey*. Dorchester.

Laidlaw, M., 1999 'Prehistoric and Romano-British pottery', in Hearne and Birbeck 1999, 110–13.

Le Patourel, J., 1968 'Documentary evidence and the medieval pottery industry', *Medieval Archaeology* **12**, 101–26.

McCarthy, M.R. and Brooks, C., 1988 *Medieval Pottery in Britain AD 900–1600*. Leicester University Press.

Mepham, L.N., 1993 'Pottery', in Graham and Davies 1993, 101–14.

Mepham, L., 2000 'Finds', in P. Andrews, L. Mepham and R. Seager Smith, 'Excavations at Wilton, 1995–6: St John's Hospital and South Street', *Wiltshire Archaeological and Natural History Magazine* **93**, 191–6.

Moffett, L., 1994 'Charred cereals from some ovens/kilns in late Saxon Stafford and the botanical evidence for the pre-burh economy', in J. Rackham, *Environment and Economy in Anglo Saxon England: a review of recent work on the environmental archaeology of rural and urban Anglo-Saxon settlements in England. Proceedings of a conference held at the Museum of London, 9–10 April, 1990*, 55–64. CBA Research Report No. **89**.

Monk, M., 1977 'Seed evidence', in D.A. Hinton and R. Hughes, 'Excavations in Wareham 1974–5'. *Proceedings of the Dorset Natural History and Archaeological Society* **99**, 76.

Murphy, E., 1991 'Anglo-Saxon abbey Shaftesbury – Bectun's base or Alfred's foundation?', *Proceedings of the Dorset Natural History and Archaeological Society* **113**, 23–32.

Musty, J., Algar, D.J. and Ewence, P.F., 1969 'Medieval pottery kilns at Laverstock near Salisbury, Wiltshire', *Archaeologia* **102**, 83–150.

Nash, G., 2003 'Archaeological investigations at the Southern Electricity Depot, High Street, Shaftesbury, Dorset', *Proceedings of the Dorset Natural History and Archaeological Society* **125**, 83–92.

Needham, S. and Spence, T., 1997 'Refuse and the formation of middens', *Antiquity* **71**, 77–90.

O'Connor, T.P., 2000 *The Archaeology of Animal Bones*. Stroud: Sutton Publishing.

Peacock, D.P.S., 1979 'Petrography of fabrics A–H' in P. Rahtz, *The Saxon and Medieval Palaces at Cheddar*, 310–14. Brit. Archaeol. Rep. British Series **65**. Oxford: British Archaeological Reports.

Pearson, T., 1982 'The post-Roman pottery' in P. Leach, *Ilchester Vol. 1, Excavations 1974–1975*. Western Archaeological Trust Excavation Monograph.

Penn, K.J., 1980 *Historic Towns in Dorset*. Dorset History and Archaeological Society: Monograph Series 1.

Pollard, J., 1992 'The Sanctuary, Overton Hill, Wiltshire: a re-examination', *Proceedings of the Prehistoric Society* **58**, 213–26.

Pollard, J., 1999 'These places have their moments: thoughts on settlement practices in the British Neolithic', in J. Brück and M. Goodman (eds), *Making Places in the Prehistoric World: Themes in Settlement Archaeology*, 52–75. London: UCL Press.

Pollard, J. (ed), nd. 'Neolithic and earlier Bronze Age', in *South West Archaeological Research Framework (SWARF) Resource Assessment*. [http://www.somerset.gov.uk/media/8E5/3F/neoeba.pdf] [accessed 26/09/2006]

Rahtz, P., 1979 'Saxon and medieval pottery', in P. Rahtz, *The Saxon and Medieval Palaces at Cheddar*, 308–51. Brit. Archaeol. Rep. British Series **65**. Oxford: British Archaeological Reports.

Reimer, P.J., Baillie, M.G.L., Bard, E., Bayliss, A., Beck, J.W., Bertrand, C., Blackwell, P.G., Buck, C.E., Burr, G., Cutler, K.B., Damon, P.E., Edwards, R.L., Fairbanks, R.G., Friedrich, M., Guilderson, T.P., Hughen, K.A., Kromer, B., McCormac, F.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**, 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*, 189–218. Brit. Archaeol. Rep. British Series **133**. Oxford: British Archaeological Reports.

Ruggles, C., 1998 'Ritual astronomy in the Neolithic and Bronze Age British Isles: patterns of continuity and change', in A. Gibson and D. Simpson (eds), *Prehistoric Ritual and Religion: Essays in Honour of Aubrey Burl*, 203–8. Stroud: Sutton.

Smith, R.W., 1997 *Excavations at Emwell street, Warminster: the early economy and environment of a Wiltshire market town*. Wessex Archaeology.

Straker, V., 1997 'Charred plant remains', in Smith *et al.*, 184–90.

Smith, R.J.C., Healy, F., Allen, M.J., Morris, A.L., Barnes, I. and Woodward, P.J., 1997 *Excavations Along the Route of the Dorchester Bypass, Dorset, 1986–8*. Wessex Archaeological Report **11**.

Sykes, N., 2004 'The introduction of fallow deer to Britain: a zooarchaeological perspective', *Environmental Archaeology* **9** (1), 75–81.

Thomas, J., 1999 *Understanding the Neolithic*. London: Routledge.

Valentin, J., 2002 'Worked flint and chert', in J. Valentin and S. Robinson, 'Excavations in 1999 on land adjacent to Wayside Farm, Nursteed R., Devizes', 193. *Wiltshire Archaeological and Natural History Magazine* **95**, 147–213.

Valentin, J., 2003 'Manor Farm, Portesham, Dorset: Excavations on a multi-period religious and settlement site', *Proceedings of the Dorset Natural History and Archaeological Society* **125**, 23–70.

Valentin, J. and Robinson, S., 2000 'Archaeological excavation and recording of land between 28 and 30 Bell Street, Shaftesbury, Dorset', *Proceedings of the Dorset Natural History and Archaeological Society* **122**, 99–109.

Vince, A. and Jenner, A., 1991 'The Saxon and Early Medieval pottery

of London', in A. Vince (ed.), *Aspects of Saxo-Norman London: 2. Finds and Environmental Evidence*, 19–119. LAMAS Special Paper **12**.

Whittle, A., 1997 'Moving on and moving around: Neolithic settlement mobility', in P. Topping (ed.), *Neolithic Landscapes*, 15–22. Oxford: Oxbow Books.

Wilson, C.A., 1991 *Food and Drink in Britain*. London: Constable.

Woodward, P.J. and Smith, R.J.C., 1987 'Survey and excavation along the route of the southern Dorchester by-pass, 1986–1987 – an interim report', *Proceedings of the Dorset Natural History and Archaeological Society* **109**, 79–89.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 97–103

Hod Hill: 'Too much wasted by cultivation for definite survey'

D.A. STEWART

Introduction

Hod Hill is situated in the parish of Hanford, Dorset, about 5km north-west of Blandford Forum and can be reached by footpath from the Hanford Road or bridleway from Stourpaine. It is occupied by an Iron Age hillfort, enclosing an area of 22 ha, and a Roman encampment situated within the north-west corner of the hillfort. It is a Scheduled Ancient Monument (Dorset 16) and designated as a Site of Special Scientific Interest for its population of butterflies and orchids.

The quotation in the title (Sumner 1988, 15) was originally made in 1913 after the western half of the hillfort and Roman camp had suffered half a century of Victorian ploughing. Further wartime and post-war episodes of cultivation exacerbated the situation until by 1954 only a small segment of the Iron Age settlement remained visible to be recorded by the Royal Commission on Historic Monuments [England] (1970). Modern geophysical techniques, however, allow detection of features below the soil and challenge Sumner's statement.

Originating from an undergraduate dissertation on plough damage, the interior of the Iron Age hillfort and Roman camp on Hod Hill have since 2005 been extensively surveyed by magnetometry and sampled by various other techniques. This paper presents the results of the magnetometry survey (Figs 1 and 2) and offers some interpretation of the data.

The striking impression is the density of occupation evidence right across the hillfort interior and the clarity of responses in the eastern half of the hillfort.

The east

Post-war ploughing in the north-east quadrant has erased all positive features but the damage to buried surfaces appears superficial. The ring ditches of dwellings are clearly visible, interlocking in some places to provide continuous drainage channels down the slopes.

The roof-supports and walls can be seen as a ring of post-holes within the ditch (Fig. 3). In the unploughed portion the collapsed walls form low banks of flint and chalk rubble (Richmond 1968,19) but in the ploughed areas these positive features have been erased.

Virtually all the hut circles also contain a strong magnetic response that may be interpreted as a hearth or a pit. Earth resistivity surveys would be expected to detect pits but not hearths, so a comparison with the magnetometry reveals that some anomalies represent hearths placed on the occupation floor which has survived ploughing. Most anomalies, however, do show as patches of low resistance, confirming the findings of Boyd-Dawkins (1900, 59) that pits exist within many hut platforms, and that some of the pits had hearths sunk into them. Ground-penetrating radar responses support the inclusion of such material within the pits.

The ring ditches generally enclose a space 10–14 metres across with an entrance towards the south-east. Boyd-Dawkins (1900, 62) thought that their small size would make it difficult for them to be inhabited while a fire was in the centre; however, reconstructions at Cranborne, Butser and the Peat Moors Centre have shown such an arrangement to be quite practicable.

Several huts, spaced across the area are enclosed by outer ditches. Richmond (1968, 33) based his interpretation of the Roman capture of Hod Hill on the finding of ballista bolts within one such enclosure. He postulated that accurate bombardment of 'the chieftain's hut' led to the rapid capitulation of the garrison. However, if the various enclosed structures are contemporary, it suggests a social hierarchy and organisation on family lines rather than a single leader.

Between the groups of huts a system of trackways can be seen branching out from the Steepleton Gate. These tracks are bordered in places by the interlinked drainage channels and, particularly near junctions, by post-built structures, usually interpreted as granaries (Fig. 4). The siting of post-built structures in such prominent positions might indicate that their purpose was for commerce rather than mere storage. It is also worthy of note that there is no apparent concentration of the storage pits presumed to hold seed-corn. This contrasts sharply with Danebury, where it is estimated that up to 4,800 pits (Cunliffe and Poole 1991, 36) may have serviced the population within an area of 5 ha, less than a quarter the size of Hod Hill.

Along the easternmost trackway parallel to the eastern rampart, the circular structures appear to comprise occupation platforms terraced into the slope with no ring ditch. Brailsford (1949, 43) thought they might be 'cooking huts' although Boyd-Dawkins (1900, 60) found refuse from both domestic and craft activities.

The deep hollows behind the rampart are described as quarry pits. In several sheltered places there is a strong spread of magnetic response that is probably related to industrial activity. Iron slag has been found in previous excavations near the Steepleton Gate (Boyd-Dawkins 1900, 62) making smelting the most likely cause, although some smaller responses may possibly be from modern rubbish dropped from the ramparts by walkers.

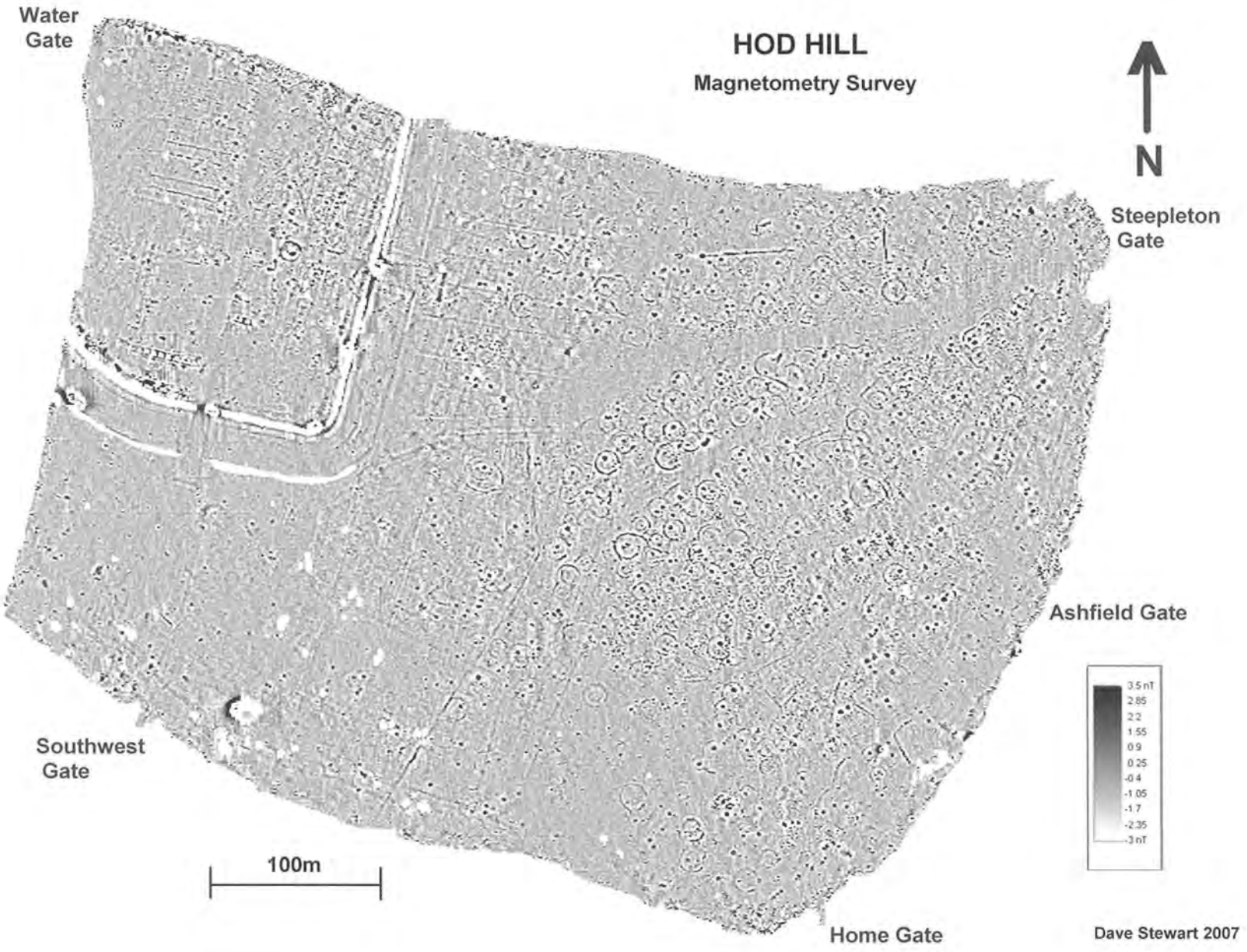


Figure 1: Magnetometry plot of Hod Hill – fluxgate gradiometer 0.25m × 1m resolution

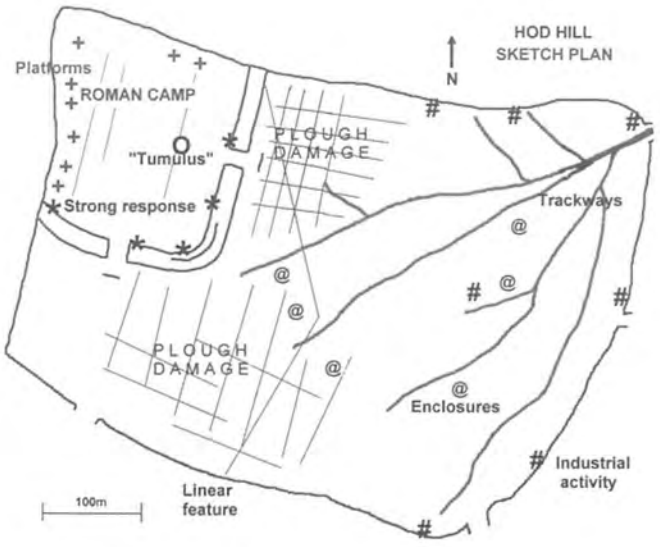


Figure 2: Sketch plan showing main features mentioned in this article

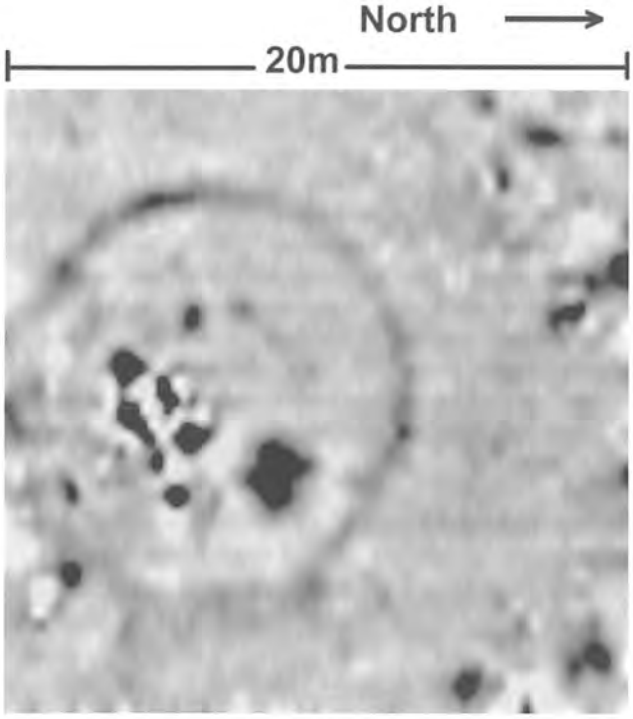


Figure 3: Detail of circular structure – 0.25m × 0.5m resolution

Magnetic susceptibility sampling to test for human enhancement of the soil identified another industrial activity within the area of occupation. A scattered response from magnetometry was matched by a massive susceptibility response (Fig. 5). Further laboratory analysis by scanning electron microscope showed that the soil from this location contained small pieces of a dense slag and large quantities of hammerscale, clear evidence of a smithy.

Since the trackways from the Steepleton Gate stand out so well, it is significant that no track can be seen from the Ashfield Gate. Richmond adjudged that the

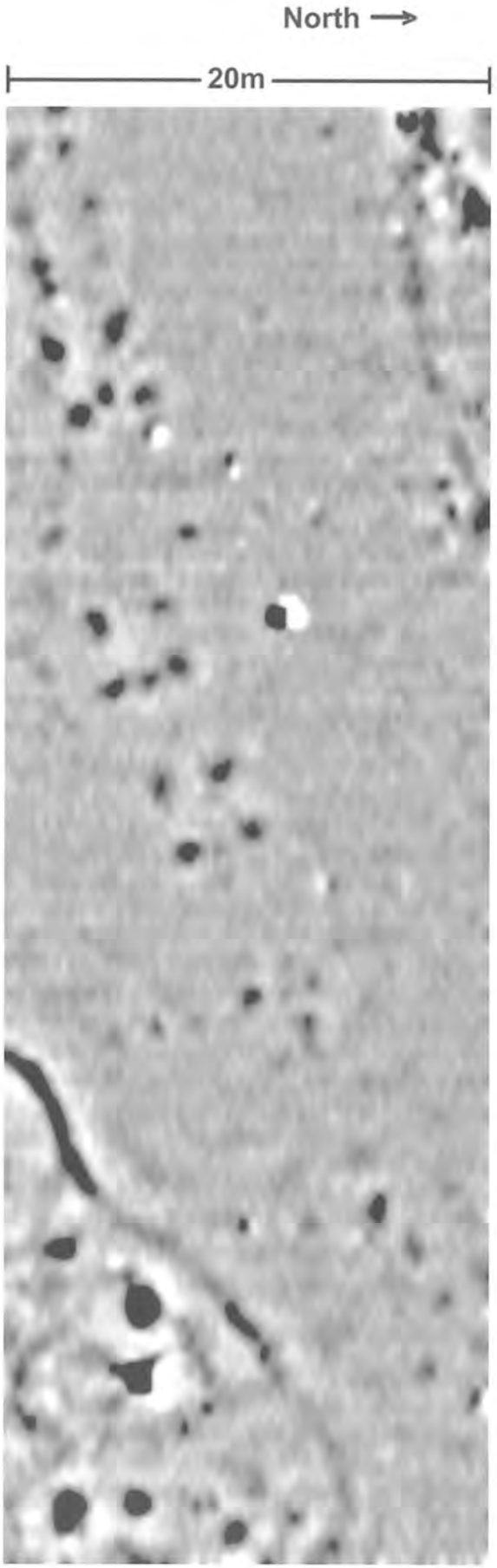


Figure 4: Detail of trackway showing post-built structures – 0.25m × 0.5m resolution

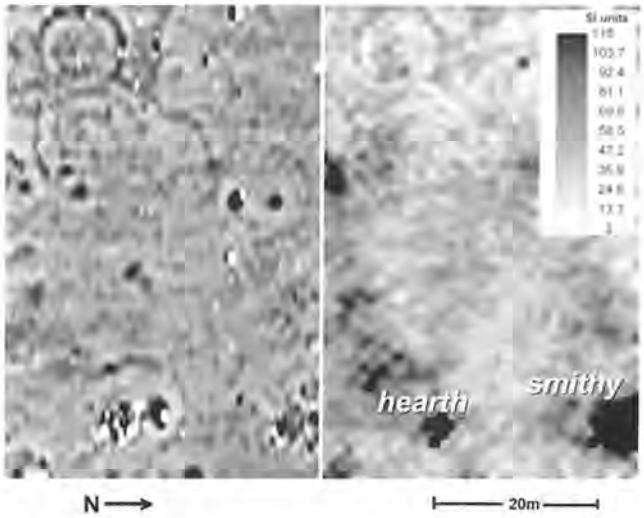


Figure 5: Detail of smithy site – magnetometry (left) and magnetic susceptibility

latter had been cut by the Romans to provide a direct access to the east gate (*porta praetoria*) of their camp, yet there is no sign of a road or trackway between the two. Either the Romans departed before the project was complete or perhaps the Ashfield Gate is more modern, as Boyd-Dawkins suggests (1900, 54).

The south-west

Looking further west the magnetometry responses become generally weaker and in part of the south-west quadrant there are comparatively scant traces of occupation, with few hut circles in evidence. The survival of pits and the parallel scars of more recent plough damage might suggest that other traces had been erased by Victorian ploughing; but in the early spring, differential growth of grass produces green circles across this area. One such crop-mark was investigated with radar (Fig. 6) and earth resistivity, both of which identified ring ditches invisible to magnetometry, presumably through lack of contrast between their fill and the natural chalk into which they are cut. Given that the magnetic susceptibility analysis indicates significant enhancement of soil in the occupied area, natural silting of cut features could be expected to produce a higher contrast. Therefore the supposition is that the features were intentionally backfilled. Filling with turf prior to 19th-century ploughing is possible, but earlier filling with chalk material from banks is more likely.

A feasible scenario is that the occupying force levelled the habitation area south of their camp to form an exercise area as postulated by Richmond (1968, 91) and to allow direct egress via the Southwest Gate. The Roman capability for such earthworks is attested by the featureless rammed chalk platforms that form the berms between the inner and outer ditches of the Roman camp.

The levelled area may have extended eastward into the unploughed segment and would thus account for the

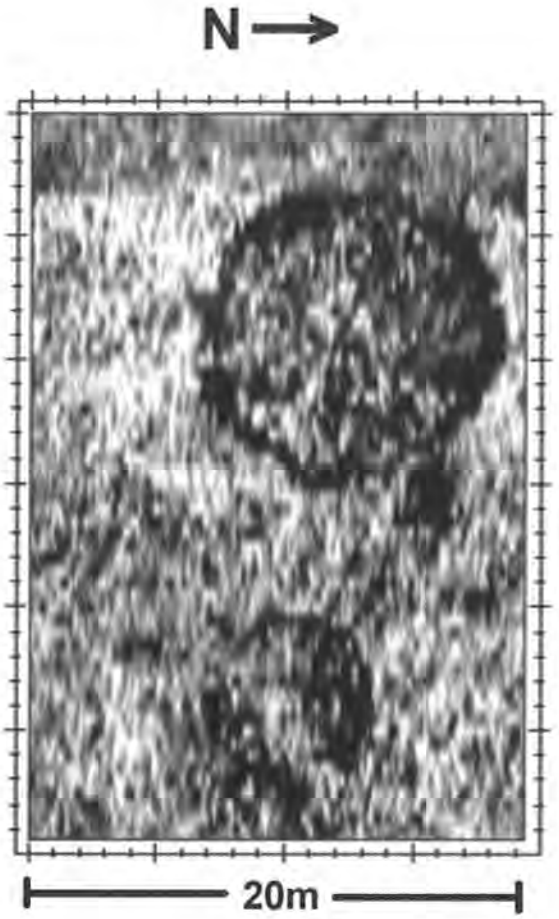


Figure 6: Radar plot of crop marks – horizontal slice at 8.29ns (approx. 0.85m)

generally weaker responses at its western edge. Features within this area that do register stronger signals may, contrary to Richmond (1968, 33), have been cut after the Roman occupation; or alternatively belong to an earlier phase and have partially filled with enhanced material before they were levelled.

Further earth resistivity surveys covering 4 hectares confirmed that some ditches do remain but far fewer than would be expected from the crop-marks. It was suggested that ploughing on the southern slopes might have caused deep colluvial deposits, burying features below the effective depth of the FM36 gradiometer and the half-metre resistivity array. To test this possibility, ground-penetrating radar and wider resistivity probe spacings were used to search deeper into the soil. No ditches were detected and the radar responses from pits were seen at a similar depth to samples from ploughed and unploughed areas further east. The conclusion drawn is that the structures in this area must be similar to those along the eastern fringe; they are terraced into the slope with no ring ditch. On this premise it is possible to identify anomalies on the resistivity plot (Fig. 7) that would match the effect of plough damage on a terraced platform and that coincide with areas of differential growth.

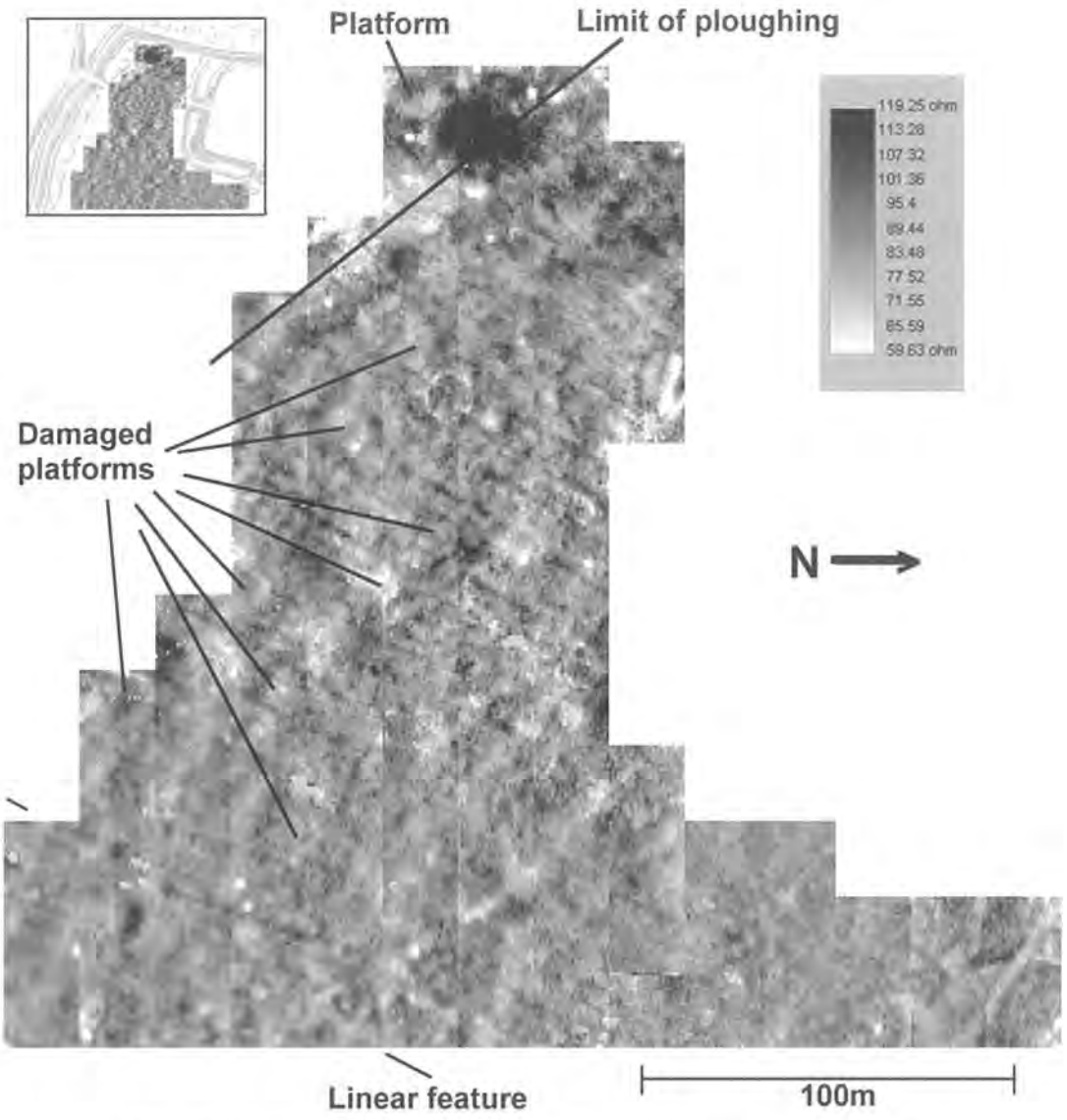


Figure 7: Resistivity plot of south-western quadrant – 0.5m twin array at 0.5m × 1m

The anomaly looking like a cigarette-burn near the southern quarry pits is a galvanised iron cattle trough that causes massive distortion to the magnetic readings. The excavation of a narrow pipe trench to service this trough (Papworth 2000) revealed only three post-holes. This lack of features was attributed to denudation by agriculture; but given the known propensity to site post-built structures beside trackways, it now seems likely that the pipe trench happened to follow the course of such a trackway from the Southwest Gate.

It is possible to observe channels elsewhere across the western section where the lack of pits or crop marks might suggest trackways, but without more evidence their precise course is speculative.

The small blank areas on the survey plot are places that could not be surveyed. The number of these, particularly to the south and east of the Roman camp shows that modern encroachment of hawthorn scrub into features and platforms is widespread. They thrive in the deeper soil of pits and ditches, damaging the archaeology that has survived the plough and reducing the effectiveness of the grazing policy by encouraging the spread of briar and brambles.

The Roman Camp

The Roman camp in the north-west corner of the Iron Age fort is also known as Lydsbury Rings. The magnetic responses from the Roman buildings are weak, reflecting their shallow wooden beam foundations and the effect of prolonged ploughing. Piecemeal excavation has further confused the picture: there is no precise record of the position of the trenches from Richmond's excavation in the 1950s, the notebooks having apparently been lost. Even so the results generally conform with the published plan of the Roman fort (Richmond 1968, fig. 62). One barrack block shows up more clearly than the others, including its internal divisions. This appears to confirm that it, and the neighbouring cookhouse, were destroyed by fire, which enhances the magnetic properties of the soil on which it stood.

Figure 8: Detail of 'tumulus' – 0.25m × 0.5m resolution

Faint traces of circular features cut by rectilinear structures attest that the camp was superimposed on an earlier settlement. Around the fringes of the camp, outside the area of the Roman buildings, circular hut platforms can still be detected, terraced into the slope.

The circular feature across the *via praetoria*, visible on aerial photographs, is classified by Richmond as a tumulus (1968, 4) and is recorded as such on the National Monument Record. Richmond did not, however, excavate this feature. Given both its size and the apparent presence of an entrance causeway to the south-east, the magnetometry results (Fig. 8) suggest the possibility that it represents the ring ditch of a hut. If the structure belonged to an earlier period it could account for the strong magnetic response from the ditch, silted long before the Romans arrived. Nevertheless it seems curious that the Romans, who carried out major earthworks in constructing ramparts, building roads and probably levelling an exercise area, should leave a large mound in the middle of the main camp thoroughfare. Nor does it seem an appropriate place for the Romans to dig a rubbish pit, which is what Boyd-Dawkins apparently discovered when he sank a trench in this area (1900, 64). An equally plausible explanation is that this structure post-dates the occupation of the Roman camp and represents re-occupation by the native people. This is the highest point of Hod Hill with commanding views in all directions and would be a prestigious site for a building. The Lydsbury name may even be a clue that this could be a Romano-Celtic temple to Nodens/Lludd, cf. Lydney, Gloucestershire.

Strong bi-polar magnetic anomalies exist at several points along the base of the inner rampart, including beside both gates and at the south-east corner. Such responses probably indicate buried iron, such as demolition debris from gatehouses and angle towers, or the remains of Victorian fence-posts. Large hearth structures might produce a similar response pattern but it is unlikely that bread-ovens would be sited against the outer side of the bank.

Conclusion

The frustration of a geophysical survey without the ground-truthing of an excavation is that features are identified but their dating and inter-relationship is uncertain.

This is typified by two long linear features that bisect the hillfort. They are visible but unrecognised on Crawford's 1920 aerial photograph (Crawford and Keiller 1928, 36) and extend beyond the southern edge of pre-war cultivation, suggesting that they are ditches rather than artefacts of ploughing. But it is not possible to determine whether they are modern, medieval or perhaps prehistoric boundaries pre-dating the hillfort itself.

In view of these uncertainties the overall interpretation must be cautious. The hillfort has been extensively occupied and many of the structures will have been contemporary, apparently arranged in family or tribal groupings. Many opinions exist regarding the purpose of hillforts but the positioning of post-built structures, the lack of storage pits for crop husbandry and the abundance of industrial traces are consistent with a commercial centre rather than the principal dwelling of a farming community.

That the Romans arrived is certain. Whether they came to control the unruly native population or the trade along the Stour valley is an open question, as is the possible continued or resumed occupation of the site after their departure.

At a lower level, however, it is possible to say that the magnetometry survey has provided new spatial information and opened the door to further research on a site deemed 'too much damaged by cultivation for definite survey'.

Acknowledgements

The author would like to express his gratitude to Paul Cheetham, Senior Lecturer in Archaeology, Bournemouth University for his assistance in carrying

out radar surveys; to Martin Papworth, Regional Archaeologist, National Trust (Wessex) for permission to survey the land, the loan of a gradiometer and assistance with travel expenses; to William Roy, veteran of the Richmond excavations for his interest and encouragement in the field; to Andrew and Wendy Stewart for their assistance and support throughout the survey. Finally, thanks are due to English Heritage for granting licences to survey a scheduled monument.

BIBLIOGRAPHY

Boyd-Dawkins, W., 1900 'The exploration of Hod Hill, near Blandford, Dorset, in 1897', *Archaeological Journal* **57**, 52–68.

Brailsford, J., 1949 'Interim report on preliminary excavations at Hod Hill, 1949', *Proceedings of the Dorset Natural History and Archaeological Society* **71**, 41–50.

Crawford, O. and Keiller, A., 1928 *Wessex from the Air*. Oxford: Clarendon Press.

Cunliffe, B. and Poole, C., 1991 *Danebury: an Iron Age Hillfort in Hampshire. Volume 4, the excavations 1979–1988: the site* (CBA Research Report No. **73**). London: Council for British Archaeology.

Papworth, M., 2000 'Hod Hill, Stourpaine', *Proceedings of the Dorset Natural History and Archaeological Society* **123**, 125.

Royal Commission on Historical Monuments (England) 1970 *An Inventory of Historical Monuments in the County of Dorset. Vol. 3: Central Dorset*. London: HMSO.

Richmond, I., 1968 *Hod Hill Volume II: excavations carried out between 1951 and 1958 for the Trustees of the British Museum*. London: Trustees of the British Museum.

Sumner, H., 1988 *The Ancient Earthworks of Cranborne Chase*. Gloucester: Sutton and Wiltshire County Library.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 105–114

Excavations at High Lea Farm, Hinton Martell, Dorset: A third interim report on fieldwork undertaken during 2006–7

JOHN GALE, IAIN HEWITT and MILES RUSSELL

Introduction

During the summers of 2006 and 2007, the fifth and sixth seasons of archaeological excavation and field survey took place at the site of the High Lea Farm barrow group near the villages of Hinton Martell and Witchampton in East Dorset. The High Lea Farm barrow group is a badly denuded round barrow cemetery, one of several similarly barely surviving barrow cemeteries that lie in the Allen valley to the south of the Knowlton Henge complex.

In the four previous seasons an extensive programme of excavation and non-intrusive survey has begun to reveal a great deal of new information concerning the design and layout of this much damaged barrow cemetery. Equally importantly has been the discovery of some well-preserved remains at one of the larger barrows that documents a complex and relatively unique sequence of activity that potentially spans over three millennia (Gale *et al.* 2004, 160–6; 2007, 100–6).

In 2006 investigations concentrated upon the continued excavation of Barrow HLF 09 (Trench 5) and the sampling of Barrow HLF 02 (Trench 13) in the field known as Kings Close, to the north of the farm buildings at High Lea Farm. Although the greatest concentration of barrows so far identified appears to be concentrated within this relatively modern field boundary, it is apparent (and to be expected) that identifiable ring ditches do extend beyond Kings Close into the fields to the north and south. With this in mind, the very successful geophysical campaign conducted during 2002–5 (Gale *et al.* 2007, 100–2) was extended during 2006 to include the field to the south known as Middle Field. The results of this survey (magnetometry) have once again exceeded expectations with the plotting of a further fifteen ring ditches, only four of which have been previously indicated on aerial photography (NMR 1762/263, ST 9905/1).

In what was expected to be the final season of excavations in 2007, excavation once again concentrated upon Barrow HLF 09. However, due to the complex and rather unexpected nature of the pre-barrow deposits that lay underneath the surviving barrow, the excavations will require a final campaign in the summer of 2008.

The following account is therefore a summary statement of the major findings of the structural sequences of the site that have been revealed so far, largely devoid of substantive reporting of artefactual data or laboratory analysis of chronological and environmental data, all of which are currently undergoing examination.

Excavation 2006

Ring ditch HLF 09

The interim results of the excavation programme at Kings Close in 2005 had highlighted the exceptionally well-preserved archaeological remains centred upon Barrow HLF 09 (Gale *et al.* 2007, 100–6). Compared with the earlier excavations of barrows HLF 03 and 04 (Gale *et al.* 2004, 160–6) the relatively improved state of preservation was largely attributable to its location in the headland of the northern boundary of the field, which had provided partial protection from the attentions of the plough blade.

To better understand the barrow and both the pre-barrow and post-barrow activity associated with it, it was decided to extend the area of excavation for HLF 09 for the five-week excavation season commenced in early August of that year. Subsequently an irregular-shaped trench was laid out (Fig. 1) and the overburden of ploughsoil was machine-stripped off prior to the subsequent hand excavation of below ploughsoil deposits. The first trowelling of the machine stripped surface at the western half of the trench revealed a plough-affected and weathered chalk surface, with the exposure of several negative chalk-cut features showing up through their characteristic contrasting soil fills. The circuit of the barrow ditch was well defined as were the presence of four circular pits, each approximately 2m in diameter, that were irregularly spaced around the outer circumference of the barrow ditch (Fig. 2). The alignment of these pits would not seem to be concentric with the arc of the barrow ditch, perhaps suggesting that while the two features are interlinked (or at the least associated in some way) they were constructed as separate phases of activity. Three of these pits were excavated in 2006, and all of them had a very uniform fill that suggested each had been originally excavated to a depth of approximately 0.6m, and that following their excavation they gradually filled up naturally. None of the pits contained any dateable material in their primary or secondary fills and consequently their purpose and date remain highly speculative. All of the pits seem to contain an event horizon within their fills marked by a layer of flint tumble that would seem to mirror a similar occurrence within the main barrow ditch fill sequence. This event has been noticed in the barrow ditches of HLF 03 and 04 and probably signals the large-scale tillage of the surrounding land that heralded the release of the abundant flint nodules held within the soil matrix that then gravitated into low-lying features over the entire site. Occasionally found within this event horizon are sherds of pottery, all of which are very well abraded and of a variety of fabrics dating up to the 18th century (AD).

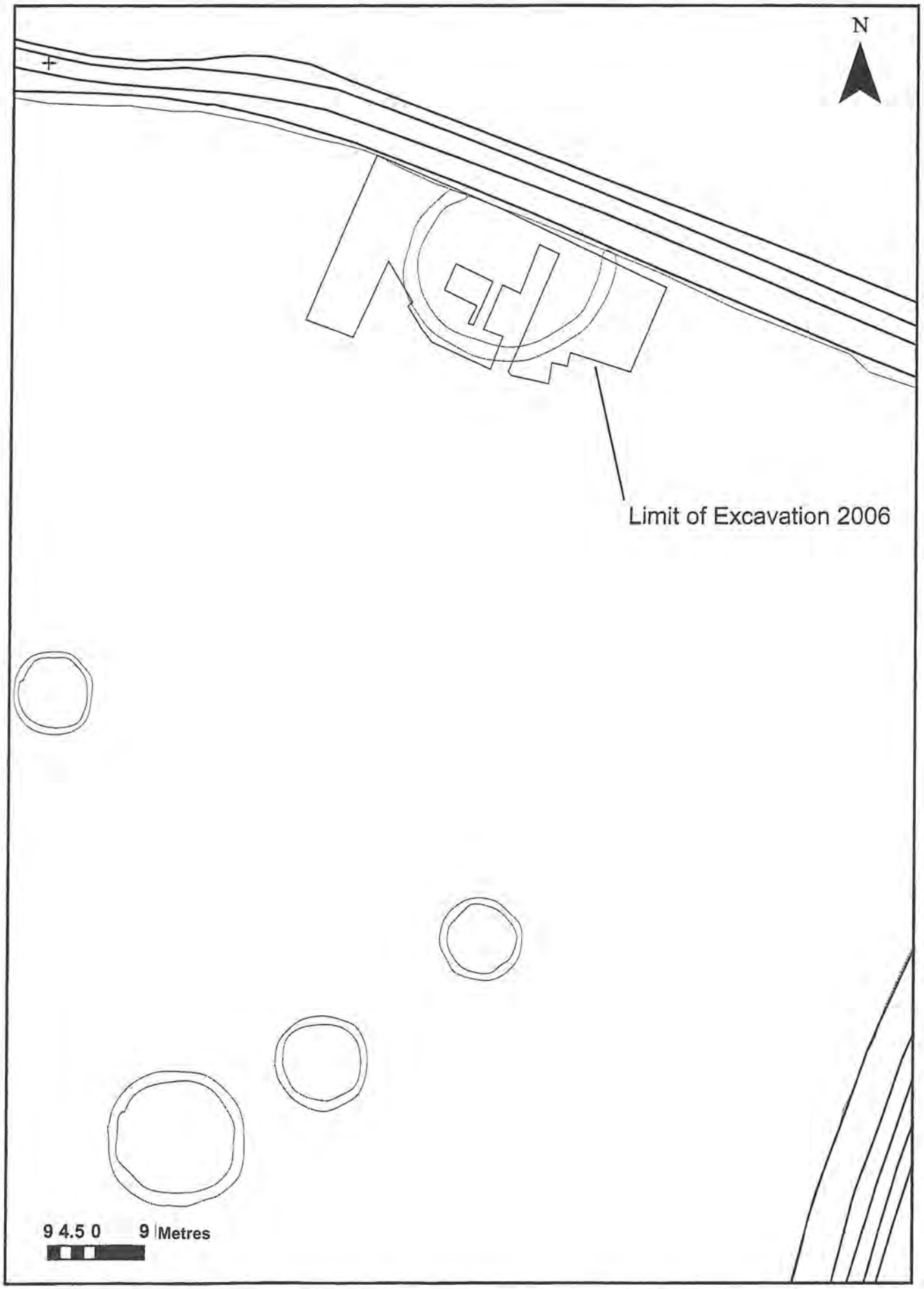


Figure 1: Location of trench (HLF 09) in 2006 season

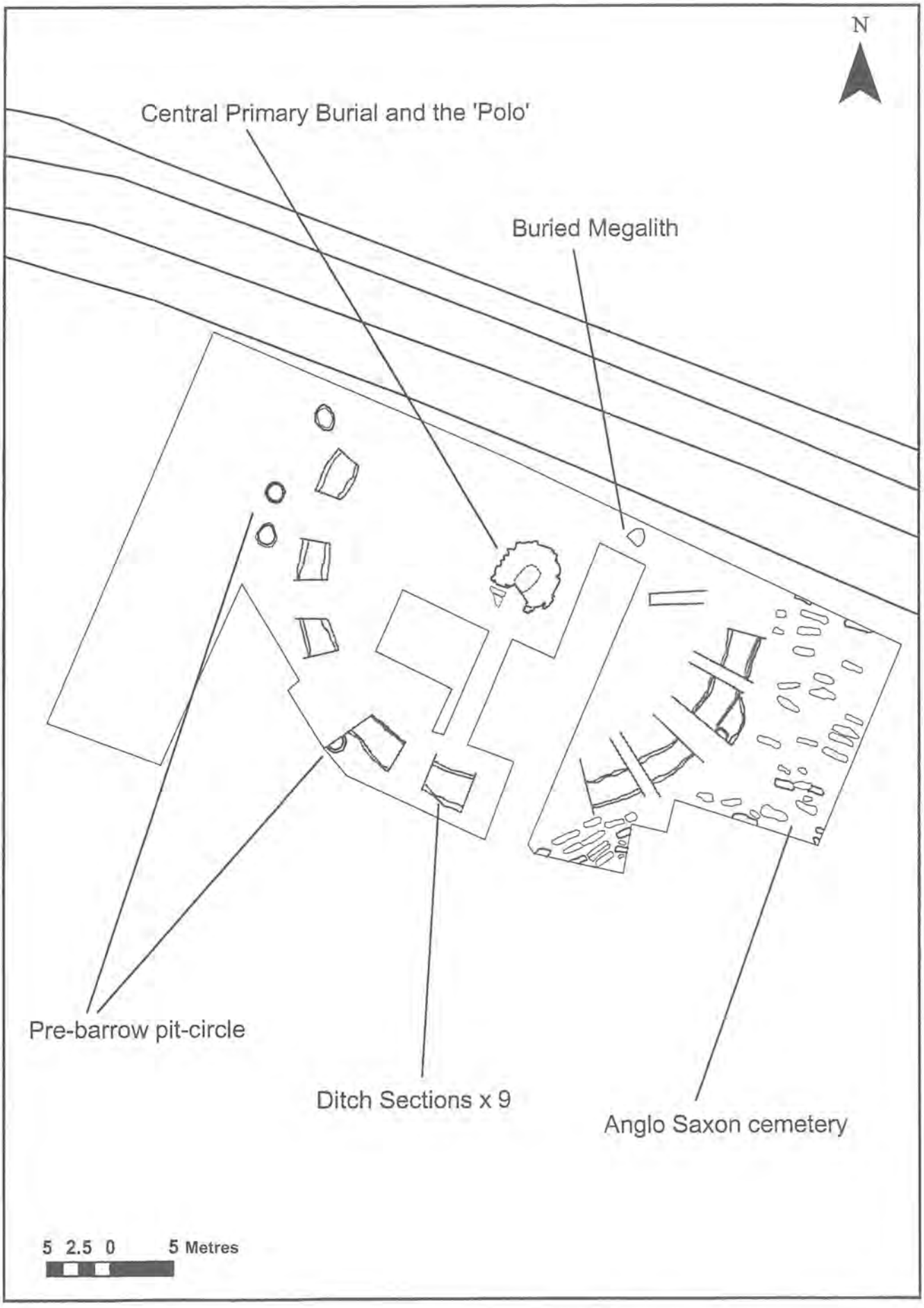


Figure 2: Main archaeological features exposed in trench (HLF 09) during the 2006 season

As recorded in the 2005 excavations, the enclosed area defined by the barrow ditch highlighted the presence of large numbers of stake-holes. While it would appear that not all the stake-holes have survived over the intervening period, in places they would seem to form three concentric rings with approximate diameters of 25.4m, 23.4m and 22.8m. It should be noted, however, that on parts of the interior defined by the barrow ditch, both in 2006 and subsequently 2007, this triple circuit had clearly been eroded away through degradation of the chalk surface, accelerated no doubt by frequent ploughings. In addition to the three concentric rings a number of other stake-holes were observable, particularly in the northern half of the trench, which appeared to have no immediate or apparent articulation with those of the concentric rings (see Excavation 2007 below).

At the centre of the ring-ditch the primary deposit, which had been partially excavated in 2005 (Gale *et al.* 2007, 105), was further examined. The central burial pit, which consisted of a rectangular cut measuring approximately 2.3m in length, 1.3m wide and 0.9m deep was completely excavated. The pit, which had been aligned on a north-east/south-west axis, contained two cremations and two urns of Food Vessel type along with deer antler, boars' tusks and a flint knife. The two cremations had both been contained within wooden frames (no base or lids to the frames were present, which suggests that they were not 'boxed') that had only partially survived. These two 'bounded' cremations each lay within a third and much larger frame that lay central and aligned to the longitudinal axis of the burial pit. It is clear that the two cremations entered the pit at separate times, determined through the sequenced deposits that subsequently filled the grave pit. It would appear that the pit had been at least partially filled after the first interment and then partially re-cut to inter the second deposit, after which the barrow was 'closed'. The initial closure of the monument as a funerary repository was enacted by the formal raising of a turf mound that was approximately 13m in diameter. The height of this mound is very difficult to determine as it has been almost completely destroyed by later erosion, but the projected slope of the mound visible in the excavations sections suggests that it could have been anything up to 1m in height at its centre. The turf for the construction of the mound (where it survived) shows up quite well in the sections created by the excavation process, particularly when the soil was damp. However, in plan the turf presented a mottled surface which texturally was identifiable but visually was impossible to record – a task made doubly difficult by plough damage over most of its exposed surface. When the turf mound was thrown up over the burial, turf was also placed in the upper fills of the central burial pit directly after the second cremation was interred into the pit.

Following the erection of the turf mound this in turn was covered with a thick layer of chalk that was presumably extracted from the main ditch that surrounds the barrow. This chalk 'capping' only survived as a thin lens (approximately 0.30m thick) observed in the northern main baulk section of the excavation, and consequently its thickness can only be confirmed on the basis of the volume of chalk extracted from the main barrow ditch.

The barrow ditch had a diameter of 38m (external–external lip), and was approximately 1m deep and up to 2.4m wide. During 2006, the ditch was sampled in nine box sections throughout the available arc of the surviving plan (Fig. 2). All of the sections highlighted the uniform nature of the ditch with its characteristic steep, near-vertical sides and a resultant flat bottom. It is clear that the builders of the barrow, and most particularly the ditch, went to great lengths to engineer a carefully crafted monument. It is manifest in the great care taken to create a ditch that was remarkably uniform in size and form and certainly was conceived as a feature that represented much more than a simple quarry for the mound which lay within its boundaries.

During the previous campaign of excavations in 2005 (Gale *et al.* 2007, 105–6) the presence of a large megalith was discovered buried in a pit that had been inserted into the mound after its completion. This pit was fully excavated in 2006 and the megalith was lifted out of the excavation (Fig. 3). Revealed under the megalith were disarticulated human remains that appear to have been the remains of a burial that had been disturbed by the act of the deliberate burial of the megalith. The skeletal remains are largely complete but none of the skull survives in the deposit and the remainder of the bones are badly smashed and broken. It would appear that during the burial of the megalith and the subsequent disturbance of a prior human burial at the same location, a decision was made to re-inter most of the remains. Subsequently the majority of the human remains were contained within a very shallow scoop in the chalk natural which lay underneath the stone (an irregular scoop approximately measuring 0.4–0.5m × 0.3–0.4m and no more than 80mm deep). While it is not impossible that the scoop was the base of the pit that contained the original interment, it is more likely that it is associated with the later pit excavation to take the megalith itself. Certainly the excavation of the later pit seems to have totally destroyed all structural evidence for the context of the human burial. It is therefore unclear whether this interment was a satellite or secondary deposit into the barrow. While it is perfectly possible that the burial was contemporary with the primary deposits in the central pit (although probably unlikely), it is perhaps more feasibly a secondary interment that would have been contained within a pit that was subsequently destroyed. It is hoped that the forthcoming radiocarbon dating programme and analysis of an associated funerary urn that was found in the megalith pit alongside the human remains may shed some further light on this important sequence.

Figure 3: 'The lifting of the 'megalith' out of its burial pit within the body of the Early Bronze Age mound. Underneath were found the disarticulated remains of an adult male that had been disturbed when the stone was deliberately buried

The date of the burial of the megalith is equally unsure, as no dateable remains were recovered that appear to be associated with the event, although it is tempting to see this as an action that may be paralleled with the burial of megaliths at such broadly contemporary sites as Avebury in Wiltshire from the 14th century onwards (Burl 1979, 36–56).

Perhaps the most surprising discovery of the 2006 season was the exposure of an extensive and later cemetery complex that lies to the south and west of the main barrow ditch in HLF 09. A minimum of 45 graves were uncovered, all of which clearly respect the articulation of the main barrow, which at the very least indicates that the builders of the later cemetery respected the earlier funerary monument. At the time of writing the date of this cemetery is not known and only two of the graves have been summarily investigated. Neither of the graves examined contained any grave goods and the burials were not removed, on the wishes of the landowner. Carbon was removed from a wooden plank that covered one of the burials, which will be submitted for radiocarbon dating in due course but it is expected that the date will indicate an Anglo-Saxon date for the cemetery, possible as early as the 6th or 7th centuries AD. For further consideration of the nature and possible importance of this cemetery please see the discussion below.

Ring ditch HLF 02

During the extensive programme of geophysics undertaken on the High Lea Farm Barrow Group; the results of the application of Ground Penetrating Radar (GPR) on Ring Ditch HLF 02, located in the heart of Kings Close indicated possible traces of the presence of a residual mound surviving within the ring ditch. Other than the ring ditches located in the headlands of the field, HLF 02 was thus the only ring ditch where survival of the superstructure of a barrow mound was suspected.

Consequently an evaluative trench was excavated through the centre of the ring ditch, 30m long and 2m wide aligned north–south. After the removal of the overburden of ploughsoil most of the excavated area came straight down onto clean chalk, with the exception of the two sections of ring ditch revealed at each end of the trench.

No mound material was recorded in plan or in section and it would appear that the anomaly recorded by the GPR was a reflection of the slightly elevated platform of hard chalk within the central area of the ring ditch. It would appear that the barrow builders chose a slightly raised area to build this barrow, presumably to give added presence to the completed structure. Over time the barrow has been eroded away and the elevated natural

mound that it was constructed upon has also been severely levelled by the action of the modern plough.

It should be noted that three out of the four barrows excavated in the field show similar signs of having been deliberately located on slight 'hillocks' in the contemporary land surface, a factor in choice of location not easily appreciated in the modern agri-levelled landscapes that make up the majority of chalk downland landscapes.

The ditches of HLF 02 were in form very similar to those of the other barrows excavated in Kings Close, having a flat-bottomed and near vertical-sided profile.

As with barrows HLF 03 and HLF 04, no central primary pit or deposit survives from HLF 02, a not insignificant statistic indicating that burial must have taken the form of deposition on the old ground surface (which has since eroded away) or that there was no primary burial in any of them. If the former is correct it would indicate the dominance of a cultural practice within the funerary observances of the local community, notably on barrows all contained within a singular alignment within the barrow group.

Geophysics in Middle Field

A central theme throughout the investigations at High Lea Farm has been the application of geophysical techniques to determine the presence of below-ground archaeology and, as we have seen above, to provide detail of the nature of anomalies through high-resolution survey using a variety of instrumentation and techniques.

Figure 4: A grey scale plot of the results of the geophysical survey (fluxgate gradiometry) of Middle Field in 2006. N.B. Readings are positive for black and negative for white

While the greatest concentration of ring ditches was expected to be found in Kings Close, it was always suspected that the barrow grouping would naturally (as the field had no bearing on the spread and articulation of barrows) continue into the surrounding fields both to the north and to the south.

Access to these fields is always somewhat problematical in a landscape that is primarily given over to arable farming, but in 2006 a small field adjacent to the north-east corner of Kings Close became available and was subjected to a Fluxgate Gradiometer survey with a survey resolution of 1m × 1m (Fig. 4). The survey highlighted the presence of a further 15 ring ditches in the group, with a large cluster of small examples (average diameter less than 12m) located to the north of ring ditch HLF 01. Barrow HLF 01 is a large double-ditched barrow located in the north-east corner of the field and appears to be the focus (or founder barrow) for the High Lea Farm group as a whole. There are currently no plans for intrusive investigation in this area.

Excavation 2007

In the early summer of 2007 excavations continued at High Lea Farm that were planned to complete the total excavation of HLF 09, with the exception of a small strip of unexcavated land at the northern edge of the field boundary, which was inaccessible.

To better evaluate and quantify the probable Anglo-Saxon cemetery, it was further determined that the excavation area would be increased to expose as many graves as possible from the later period cemetery. The area to the south-east of the 2006 trench was thus opened.

As in previous years the new areas were stripped of their ploughsoil mechanically, which was subsequently followed up with hand excavation. As expected, the exposure of the archaeological surfaces to the south-east of the main barrow ditch revealed further and extensive grave cuts. In total, 87 grave cuts have now been revealed although several of these are larger than those that would be expected for singleton deposits, so the grave population for the cemetery as a whole is likely to exceed 100 individuals. The location of the spoil heap at the eastern end of the excavation precluded further extension of the available area (it was ever so!), so it is impossible to be precise about the total population of the cemetery but it is clear that the cemetery does extend to the east of the excavated area.

Ring ditch HLF 09 and associated structures

Continued excavation of the main barrow in 2007 revealed more detail about the barrow itself and more

particularly some exciting developments regarding deposits relating to pre-barrow activity sealed underneath the raised mound.

Before the central burial pit was originally dug for the interment of the two phases of cremation deposits referred to previously (above and Gale *et al.* 2007, 105–6), a circular stake-built structure was constructed. This stake-built structure was approximately 5m in diameter and consisted of 37 stakes rammed into the chalk. The stakes were fairly uniformly spaced around the circumference of the circle (approximately 0.3–0.4m). The profile of the stakes holes indicate that the stakes were 60–80mm in diameter and were sunk into the chalk bedrock to a depth of at least 0.3m. There was no obvious break in the circuit, which suggests that the structure had no obvious portal. It could be assumed therefore that the gaps between the stakes were sufficient to enable ingress/egress or that the stakes might be stepped over. Interestingly, evidence that the gaps between the stakes were filled at some stage comes in the form of the up-cast of chalk thrown up in the later excavation of the burial pit. The up-cast was restricted from passing through the stakes by material that has long since decayed. The material, whatever it was, could not have been very substantial as it has left no physical remains, but it might easily have been wattle or perhaps even textile based.

The time interval between this structure and the construction of the burial pit does not appear to have been substantial and it is therefore tempting to interpret the structure as a mortuary house. Such a structure may have been temporarily raised as part of the rites of passage for one or all of the individuals later interred within the barrow.

This proposed interpretation of a mortuary structure may be linked to the mass of stake-holes that also lay stratigraphically underneath the later barrow referred to in the report above for 2006. Almost the whole of the platform underneath the barrow mound was excavated in 2007 and scores of further stake-holes have been discovered. The majority of them conform to three circuits, described above, but others to the north of the trench seem to have a different articulation and are therefore possibly unrelated.

The solution to the date and utility of these aberrant stake-holes may have been resolved towards the end of the 2007 excavation campaign with the discovery of two pits that pre-date the construction of the mortuary house. These pits, whose fills were pierced by at least one of the stake-holes for the mortuary house, contained a mass of charred timber and ash alongside over 30kg of flint nodules, scores of scrapers and Beaker-type pottery. It is likely that the stake-holes and pits relate to pre-barrow, pre-mortuary structure settlement,

Figure 5: An aerial view of part of the later cemetery (south-east quadrant) highlighting the presence of a probable Middle Bronze Age ring ditch cut by over 50 later graves discovered in the 2007 season

although further details on this activity will await the results of the final season of excavations in 2008.

Partially exposed in 2006 but fully exposed in 2007 is a small ring ditch that lies adjacent to the main barrow ditch in the south-east corner of the excavated area. This feature consists solely of a V-profile circular ditch that is approximately 9m in diameter. The ditch is repeatedly cut by the later cemetery (Fig. 5) and therefore pre-dates the likely early medieval cemetery. Excavation of the ditch fills failed to reveal any cultural material to enable dating of the feature, but towards the centre of the ring ditch a large fragment of what is probably a globular urn of Deverel-Rimbury type was impressed into the natural chalk surface, which may indicate Middle Bronze Age activity on the site. Certainly the ditch of the ring ditch does not conform to the flat profile of all the other ring ditches investigated at the site between 2002–7.

Preliminary Notes and Analysis of the Archaeological Potential of the early medieval (Anglo-Saxon) cemetery

Introduction

In 2006, excavations on the barrow HLF 9 unexpectedly revealed the presence of a concentration of apparently undisturbed features in close proximity to the east and south arcs of the barrow ditch. The shape and arrangement of these features is such that, as a group, they can be seen to comprise a series of inhumations that are roughly aligned on an east–west axis. Further excavation south of the barrow and its periphery in 2007 demonstrated that the number of graves is of the order of 80 or more, densely packed for the most part but with little, if any, evidence of inter-cutting. However, the cemetery does not respect a prehistoric ring ditch that lies within 1m south-east of HLF 9. The grave cuts are of a general uniformity of shape and size, the majority being suggestive of adult inhumations. However, some examples are smaller and these might represent the burials of children. In addition, smaller, sub-circular pits that might represent the position of cremation burials, perhaps un-urned, disrupt the general order of things.

The close juxtaposition of this cemetery to barrow HLF 9 is remarkably similar to examples such as Dover Buckland, Kent (Evison 1987) and Bargates, Christchurch, Dorset (Jarvis 1983). Artefact evidence has dated Buckland to between the late 6th century and the mid-8th century (*op. cit.* 138–40), while Jarvis has suggested a late 6th to 7th-century date for Bargates (1983, 104). From the evidence of the above-mentioned sites, one might infer that the cemetery that skirts HLF 9 falls within an early medieval date-range of the late 6th to 8th centuries AD. Nonetheless it must be stressed that this date can be no more than a suggestion at this stage.

Sample excavation

During the 2006 season two of the graves were excavated. Each contained the supine remains of an adult, roughly in west–east orientation. Dr Linda O'Connell examined the skeletal remains *in situ* and she has indicated that one of the individuals was male, while the other, though badly water damaged, is most likely to have been female. Both were unaccompanied and a thorough metal-detector survey has demonstrated that there is a general absence of metallic artefacts throughout the cemetery. However, a knife and a spearhead of appropriate date were found elsewhere on the site and these were probably derived from a destroyed burial that was situated on mound HLF 9 and not from the cemetery that surrounds it. From this small sample little can be deduced, and it is equally possible that these burials belong to anything from the pagan Anglo-Saxon period (*c.* 450 to 650) through to early Christian. Indeed, both pagan and Christian burials could be represented within the cemetery. Although the two sample graves contained bodies that were orientated west–east, it would be unwise to take this as a sign of Christian rites (Lucy 2000, 181). This point has been endorsed by Williams, who argues that a number of factors need to be taken into consideration when considering the layout of cemeteries and the inter-relationship of graves (2006, 106–7).

Other early medieval burial sites in Dorset

The size and context of the High Lea Farm cemetery has prompted an initial literature search for parallel sites within the present boundary of the county of Dorset.

In terms of size, the 7th-century site at Shepherd's Farm, near Swanage, was previously the largest. This cemetery could not be fully excavated and it is very probable that it was more extensive than the 57 inhumations that were located (Cox 1989, 37–47). Of somewhat smaller size, a cemetery at Frome View, Bradford Peverell, produced 16 inhumations during some four or so short seasons of excavation. The interim reports are all brief and no plan has been published (Hawthorne 1982; Hawthorne and Green 1980; Hawthorne and Pinder 1990; Keen and Hawthorne 1980; 1981). Grave goods, predominantly knives, accompanied a number of the burials and these have been used to suggest a date between the 7th and 8th centuries. At least one 'row' of graves is mentioned, suggesting that the cemetery was carefully organised. There is an indication in the first interim report that most of the bodies were positioned with head to the west.

At Christchurch (formerly Hampshire), excavations by Jarvis (1983, 102–44) revealed an inhumation cemetery of 30 graves and these were associated with the levelled remains of two ditched Bronze Age barrows. There was also a small ring ditch that was contemporary with one of the graves. Some of the burials were accompanied

by weapons, notably knives, shield bosses and spears. The full extant of the Christchurch cemetery was not determined.

Four kilometres to the north-east of High Lea Farm, but potentially of greater significance, are the 12 inhumations that were recorded in the vicinity of the Great Barrow at Knowlton Rings in 1958 (Field 1963, 117–24). Both High Lea Farm and Knowlton Rings are within the Allen Valley group of prehistoric monuments and in both cases a barrow provided the focal point for the burials. At Knowlton Rings the cutting of a pipe trench revealed the inhumations but it seems probable that those that were observed represent a small sample of a relatively large cemetery. There were no grave goods.

In the county of Dorset the association of early medieval inhumations with prehistoric monuments is quite widespread, although in most cases the number of burials at each site is quite small. Secondary use of a barrow for burial in this period include the long barrow at Blandford Camp, Tarrant Launceston, where there was one grave with knife accessory (Hewitt 2005). The single example from the Bradford Barrow is less convincing but it could be one of this group (White 1974, 30–3). At Mount Pleasant, West Stafford, excavations directed by Wainwright revealed two 'Anglo-Saxon' burials closely associated with a large Neolithic and Bronze Age enclosure (Schwieso, 1979, 181–3). A knife and a buckle accompanied the individual in Grave 1, tentatively dated to the second half of the 7th century.

Wheeler might have excavated as many as three individuals at the Maiden Castle 'bank barrow' in the 1930s (1943, 78–9), and a similar number of inhumations was identified by Putnam within a barrow at the Iron Age hillfort at Eggardon Hill (1983, 81, and 1984, 146). Three (perhaps more) inhumations were excavated at the Poundbury hillfort, Dorchester, but these may owe their presence to the close proximity of the large Romano-British cemetery at the site rather than to the pre-Roman defensive earthworks (Farwell and Molleson 1993).

The secondary inhumations found within the Bronze Age barrow at Hardown Hill, Whitchurch Canonicorum, have been reassessed by Vera Evison (1969, 232–40). The original excavation took place in 1916 although the precise details are scanty. Recovered from the graves were nine spearheads, a knife and a shield boss. An asymmetrical axe and a knife were also recovered. Evison estimates that the number of weapons present indicates a minimum of four or five male bodies while the presence of a brooch probably represents the grave of a woman, though this is by no means certain. Essentially, it is impossible to conclude that all of the bodies were buried within the barrow, and the cursory nature of the original investigation makes it possible that the Hardown monument is the focus for a larger cemetery.

In his introduction to the Christchurch excavations report, Jarvis (1983, 17) alludes to a number of minor sites at Red Hill, Iford and Boscombe Chine, all formerly in Hampshire. These and others require further investigation: the overall picture is not yet complete.

This short review of early medieval burials in Dorset has not identified any cases of the rite of cremation. However, absence of evidence is not evidence of absence and it would be rash to assert that the rite of cremation was not practiced in Dorset during the period *c.* AD 450–800. Un-urned cremation deposits may have been missed at Hardown Hill, and in any case detailed fieldwork and excavation on potentially informative sites are rare within the county. The scope for further work is considerable.

Acknowledgements

The authors would like to acknowledge the continued support of the Gaunts Estate on which the project (The Knowlton Prehistoric Landscape Project) relies heavily for accommodation and facilities during the seasonal field investigations. In particular Sir Richard Glyn and his family have been most supportive, and their developing interest in the site is welcomed. The estates manager, John Maidment, and his staff continue to assist wherever possible and particular thanks are due to John, Alvin and Stuart, who managed to lift the megalith from its resting place with due care and skill in the summer of 2006.

As in previous years most of the actual work is accomplished by students and volunteers from the length and breadth of the country and increasingly from Europe and North America. Our appreciation and thanks for all their efforts is here formally acknowledged.

With an excavation team of 80+ in 2006 and 65+ in 2007, most of whom are relatively unskilled at the outset, our final thanks goes to those members of the supervision team who keep the show on the road and ensure that not only is the excavation undertaken and recorded properly but that all participants are appropriately trained and motivated in occasionally difficult circumstances. In no particular order we thank: Mark Shattock, Harry Manley, Tracey Minall, David Stewart, Deborah Costen, David Collinge, Elizabeth Harris, Dan Riley, Rowan Searson, Elizabeth Brewster, Saskia Loughran, Theresa Mahoney, Rowan Searson, Cat Roberts, Clive Jobbins, Hailey Forsyth and Jeremy Sargeant.

BIBLIOGRAPHY

Burl, A., 1979 *Prehistoric Avebury*. London. Yale University Press.

Cox, P., 1989 'A seventh-century inhumation cemetery, near Swanage, Dorset', *Proceedings of the Dorset Natural History and Archaeological Society* **110**, 37–47.

Evison, V., 1969 'The Anglo-Saxon finds from Hardown Hill', *Proceedings of the Dorset Natural History and Archaeological Society* **90**, 232–40.

Evison, V., 1987 *Dover: the Buckland Anglo-Saxon Cemetery*. London. Historic Buildings and Monuments Commission for England. Archaeological Report **3**.

Farwell, D.E. and Molleson, T.I., 1993 *Poundbury Volume 2: The Cemeteries*. Dorchester, Dorset Natural History and Archaeological Society. Monograph **11.**

Field, N.H., 1963 'Discoveries at the Knowlton Circles, Woodlands, Dorset', *Proceedings of the Dorset Natural History and Archaeological Society* **84**, 117–24.

Gale, J., Cheetham, P., Laver, J. and Randall, C., 2004 'Excavations at High Lea Farm, Hinton Martell, Dorset: an interim report on fieldwork undertaken during 2002–3', *Proceedings of the Dorset Natural History and Archaeology Society* **126**, 160–6.

Gale, J., Laver, J. and Russell, M., 2007 'Excavations at High Lea Farm, Hinton Martell, Dorset: an interim report on fieldwork undertaken during 2004–5', *Proceedings of the Dorset Natural History and Archaeological Society* **128**, 100–6.

Hawthorne, J.B., 1982 'Bradford Peverell, a further grave', *Proceedings of the Dorset Natural History and Archaeological Society* **103**, 126.

Hawthorne, J.B. and Green, C.J.S., 1980 'Frome View Saxon burials', *Proceedings of the Dorset Natural History and Archaeological Society* **99**, 120.

Hawthorne, J.B. and Pinder, C., 1990 'Bradford Peverell inhumation cemetery', *Proceedings of the Dorset Natural History and Archaeological Society* **111**, 110–11.

Hewitt, I., 2005 'Tarrant Launceston, Race Down long barrow', *Proceedings of the Dorset Natural History and Archaeological Society* **126**, 187.

Keen, L.J. and Hawthorne, J.B., 1980 'Bradford Peverell, Frome View', *Proceedings of the Dorset Natural History and Archaeological Society* **100**, 112.

Keen L.J. and Hawthorne, J.B., 1981 'Bradford Peverell, Saxon cemetery', *Proceedings of the Dorset Natural History and Archaeological Society* **101**, 133.

Jarvis, K.S., 1983 *Excavations in Christchurch 1969–1980*. Dorchester, Dorset Natural History and Archaeological Society. Monograph **5**.

Lucy, S., 2000 *The Anglo-Saxon Way of Death*. Stroud. Sutton.

Putnam, W., 1983 'Eggardon', *Proceedings of the Dorset Natural History and Archaeological Society* **104**, 181.

Putnam, W., 1984 'Eggardon', *Proceedings of the Dorset Natural History and Archaeological Society* **105**, 146.

Schwieso, J., 1979 'The Anglo-Saxon burials', in G. Wainwright, *Mount Pleasant, Dorset 1970–71*. London, The Society of Antiquaries of London. Research Report **37**.

Wheeler, R.E.M., 1943 *Maiden Castle, Dorset*. Oxford, The Society of Antiquaries of London. Research Report **12**.

White, D.A., 1974 'A trial excavation on the Bradford Barrow, Pamphill, Dorset, 1969', *Proceedings of the Dorset Natural History and Archaeological Society* **95**, 30–33.

Williams, H., 2006 *Death and Memory in Early Medieval Britain*. Cambridge, Cambridge University Press.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 115–126

Late Iron Age and Romano-British Burials and associated activity at the former allotments, Church Knapp, Wyke Regis, Weymouth

ANDY LEONARD

with contributions by Rachael S. Smith and Lorraine Mepham, Terry Jackman and Melissa Melikian, Ian M. Betts, Philippa Bradley and Holly Duncan

Summary

The article describes the results of archaeological evaluation and excavation carried out at the former allotments, Church Knapp, Wyke Regis, Weymouth. The earliest features recorded on the site dated to the Early–Middle Iron Age and activity on site continued through to the 3rd century AD. The site's primary function was that of a burial ground, apparently growing in importance with the introduction of various features that appear to relate to ritual activity, most likely to be associated either with the burials identified on the site, or possibly with a postulated burial site at the summit of the hill.

Introduction

Following a proposal to develop allotments located around the crest of a hill known as 'Church Knapp' in Wyke Regis, Weymouth (Fig. 1; SY 6707 7828), an archaeological evaluation consisting of 11 trenches was undertaken by AOC Archaeology Group in 1998, followed by an open-area excavation during the winter of 1998/1999.

No previous archaeological work had been undertaken on the site, yet the Dorset County Sites and Monuments Record notes a number of records for the site and its immediate vicinity. Two burials, each with a pottery vessel, were found in the Glebe Allotments in 1858. One of these was a cist burial and slabs associated with two other possible cists were also recorded. Three burials were found during the construction of the reservoir in 1936, one of which was in a stone cist. Further burials were also discovered some 400m to the west in 1937 during excavations for drainage ditches in Overlands Road. In 1975 four burials were excavated and recorded by archaeologists (Dockrill 1981) during the digging of service trenches for a new housing estate to the west of Lea Road. There appeared to have been two phases of activity, with earlier burials truncated by later ones and a date range spanning the Late Iron Age to the early Roman period.

Both the evaluation and excavation followed a scheme of work approved by the Development Control Archaeologist for Dorset County Council. The site code was GAW 98 and the archive is to be deposited with Dorset County Museum, Dorchester.

Period I: Natural Deposits and pre-Iron Age Activity

The underlying 'natural' geology consists of Corallian Series Grits and Clays (Sandersfoot Grit/Sandersfoot Clay). This was identified as a pale yellow clay with occasional patches of reddish-brown silty sand. Where this deposit was burnt it was recorded as being a dark reddish-purple.

The primary phase of activity was characterised exclusively by an assemblage of worked chert and flint. Although no diagnostic period pieces were recovered, the retouched types present and the technology employed would suggest a Neolithic or Early Bronze Age date. One single platform core and a core fragment were recovered. The former had been carefully worked with some traces of platform edge abrasion. The retouched forms include scrapers and two miscellaneous pieces that may be either scrapers or knife fragments.

Of the 44 pieces of chert and 14 pieces of flint, a little over two-thirds derived from Period III contexts (1st century BC–3rd century AD), suggesting the assemblage was residual in nature. However, the presence of this artefactual material should not be disregarded. It was concentrated in the northern part of the site, suggesting that the hilltop area is the most likely site for Neolithic activity, with the artefactual material being moved downslope and diminishing in density away from the focal point. It is reasonable to speculate that funerary rituals and possibly other ceremonies took place on the hilltop prior to the 7th century BC; the burials found during these excavations being an elaboration or continuation of an earlier Neolithic/Early Bronze Age hilltop burial ground or ritual site.

Period II: 800–100 BC (Fig. 2)

The second period of activity at Church Knapp comprised the earliest archaeological features on site. The dating for these features was primarily based on the pottery assemblage which, due to its general scarcity, made close dating problematic. The pottery analysis (see below) suggested that the relatively low proportion of sandy wares indicated a potential date earlier within the suggested range rather than later.

Ditch [153] was a very shallow linear cut with concave sides and base. Terminating in the central part of the northern area of the site, it ran for 15.35m to the south-west where it turned sharply to the south before being truncated by later features. The feature was a con-

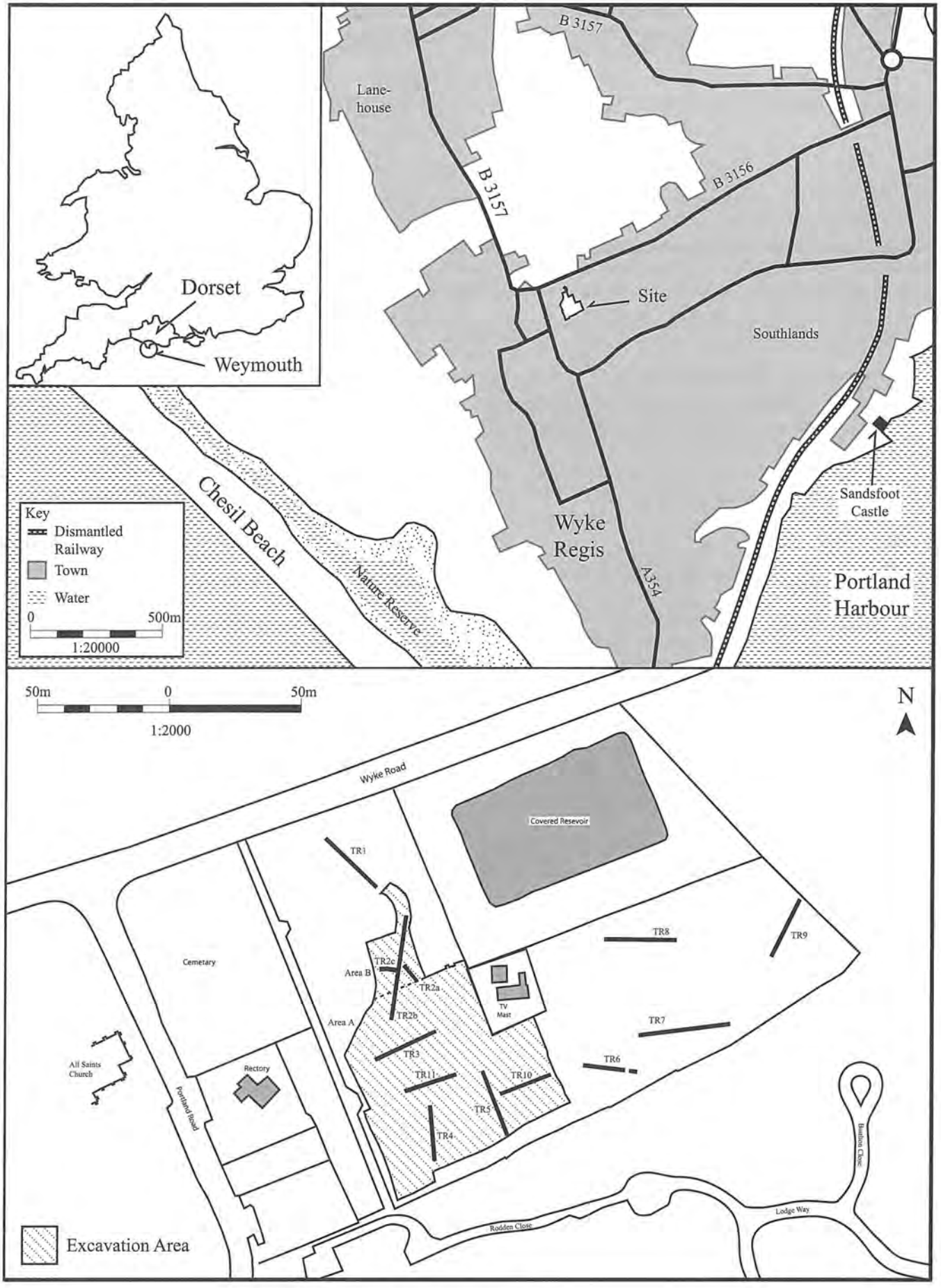


Figure 1: Site location

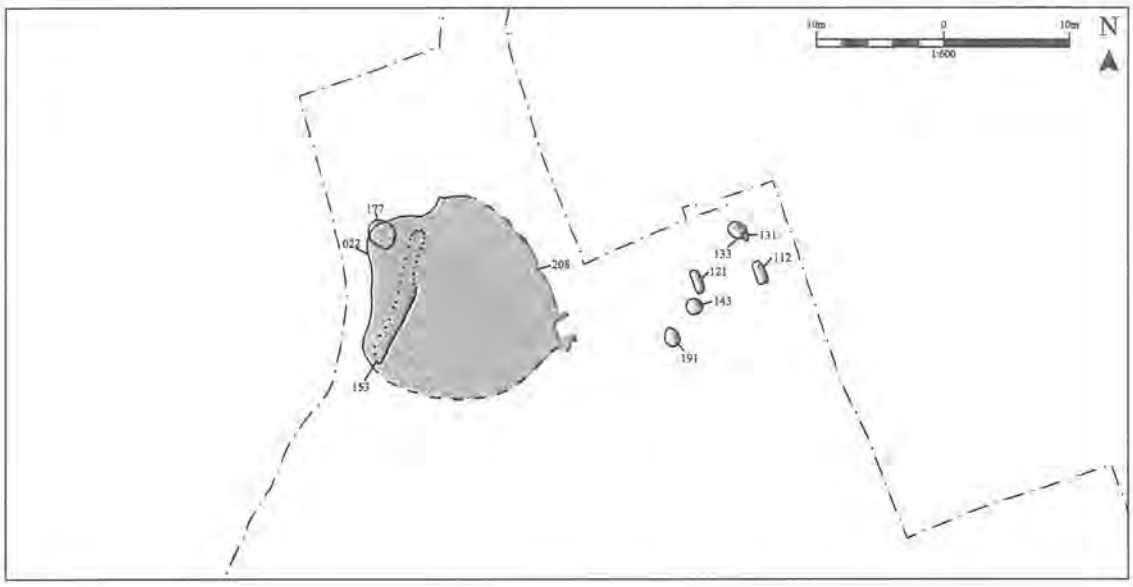


Figure 2: Period II plan

sistent 1.50m wide and did not exceed 0.09m depth, which was probably the result of horizontal truncation by later allotment activity. Pressed into the clay base of the cut were several sherds of pottery dating to the Early–Middle Iron Age (7th–4th centuries BC).

Circular pit [177] was 2.20m in diameter with irregular, steep sides and an irregular but level base. The sides of the pit had collapsed, probably while it was still open, with the result that the primary fill consisted solely of slumped natural clay. This material contained the remains of a pottery vessel dated to the 7th–4th centuries BC.

Four further shallow pits of unknown function [133], [143], [131] and [191] were clustered within 10m of each other in the north-west part of the site. Also within this 10m area were two graves. Grave [112] was a rectangular shape in plan with a slightly concave base, aligned north-east/south-west with the head at the north-east end. It contained the crouched, largely complete, remains of an adult female aged between 25 and 35 years at death. Pottery retrieved from the fill was dated to between the 7th and 2nd centuries BC.

Grave [121] was a rectangular shape in plan with a flat base, aligned north–south with the head located at the north end. The grave was 1.90m long, 0.94m wide and had a maximum depth of 0.32m. It contained the partially crouched remains of an adult, probable female, with osteoarthritis and spinal pathology, aged between 33 and 45 at death. This individual had been laid in the grave with the legs drawn up to the abdomen but with the back straight. Pottery retrieved from the fill of the grave was also dated to between the 7th and 2nd centuries BC. Neither grave contained any grave goods. The relatively shallow depth of the graves would suggest that some horizontal truncation has occurred at this part of the site, and any grave goods could have been lost during this activity.

Pit [177] and ditch [153] were cut by terrace [022]. This was irregular in plan and occupied an area 15.30m long and a maximum of 4.60m wide. The 'back edge' of the terrace, where the flat base cut most deeply into the surrounding hill, formed a large, rounded right-angle. The edge showed no sign of being revetted with stone and as a result the cut edge had lost definition through weathering and slumping, probably accounting for the irregularity in shape. The base of [022] had been consolidated with a metalled surface of small, angular stones compacted directly onto the natural clay base and sealing pit [177]. This metalling contained a small number of limestone-tempered Iron Age pottery sherds, and two sherds of *Durotrigian*-type Black Burnished ware, which usually indicates a later Iron Age date, suggesting that there was a prolonged period of use of the terrace throughout the Iron Age period.

A similar terrace [208] was located 8m to the south-east of terrace [022]. This also comprised a heavily weathered 'back edge' and a flat base containing metalling of small stones. The area of this terrace measured 4.80m north-east/south-west and 3.60m east–west. Given the similarities of form between [208] and [022], it seems very likely that they were parts of the same structure.

Period IIIA: 100 BC–AD 100 (Fig. 3)

Period IIIA comprised the second phase of archaeological activity on the site. During this period the site was developed with the installation of a substantial track and associated features along its western edge.

A stone track [202] ran north-east/south-west for 44m in the north-west corner of the site. It was 8.15m wide and 0.50m deep and had a construction cut that was lined with a metalling layer of small angular stones (predominantly of Portland Limestone) within a matrix

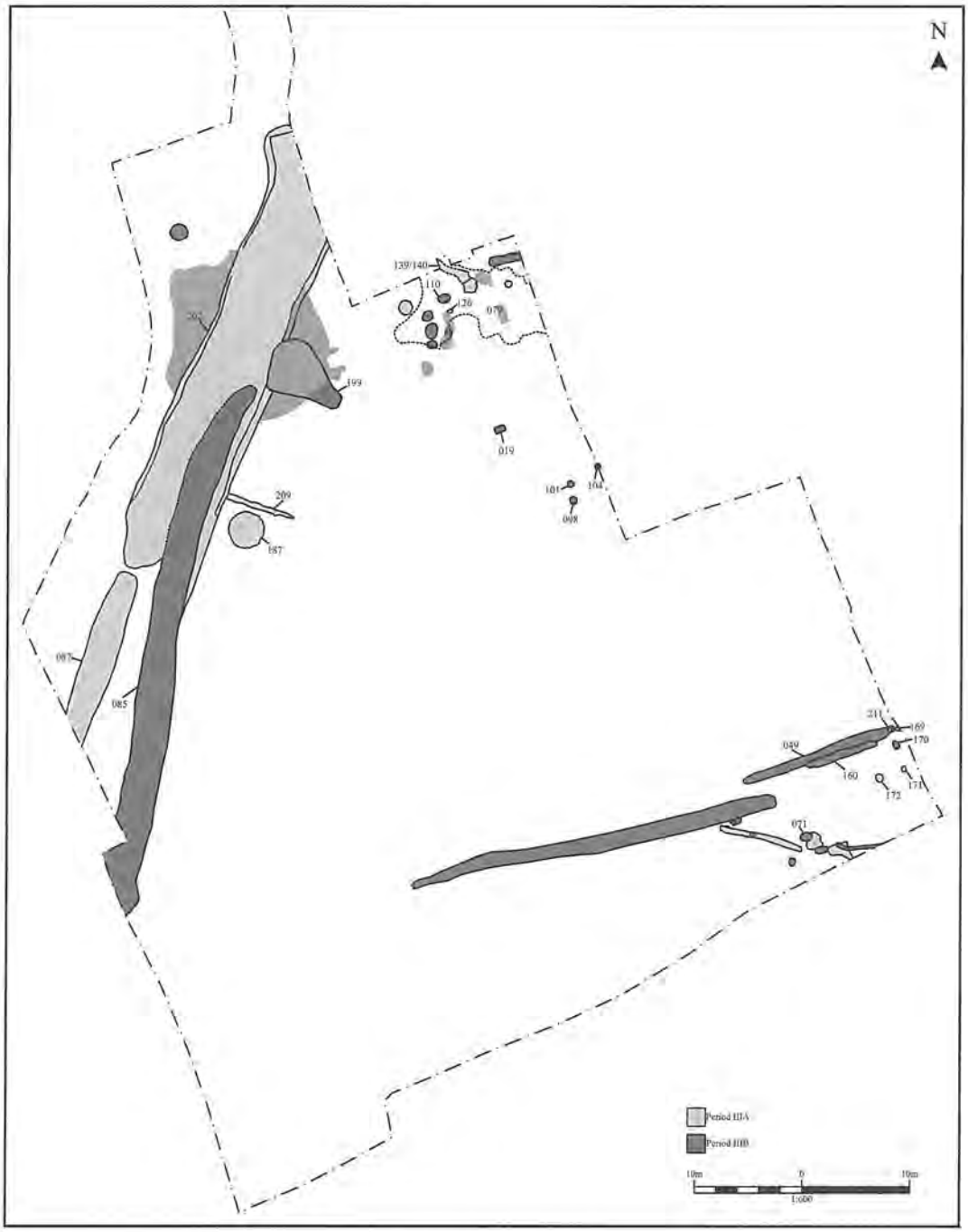


Figure 3: Period III plan

of dark grey/brown sandy clayey silt. One coin (No. 4 in coin discussion below), dating to the reign of Constans, was retrieved from the metalled surface of track [202]. The latter contained pottery sherds dating to the 1st century AD. The construction cut had 'steps' cut on either side. These 'steps' contained large stones, also predominantly Portland Limestone. These increased to a maximum size of 0.75m^3 in the north-east. These stones were originally recorded as forming a curb. However, further investigation indicated that the stones lining the south-east side of the track were more likely to be the remnants of a foundation for a retaining wall. A deposit of collapsed stone similar to those lining the south-east step was found overlying the metalling of the track, suggesting the presence of a more substantial stone structure. No evidence was found for wear or rutting of the metalled surface, suggesting that the track was only in use for a brief period of time, or was not heavily used by traffic. The latter suggestion seems more likely, given that overlying the track was a layer of trampled material dating to the 2nd/3rd century AD, suggesting a potential period of use of up to 200 years. Among the finds from this trample layer were an iron knife (Fig. 4, SF16), an Aucissa Brooch, both dating to the 1st century AD, and two coins; one dating to the 19th century (No. 6 see below) and one to the reign of Antoninus Pius (No. 3 see below).

A linear feature [087] was recorded to the south-west of, and on the same alignment as, track [202]. It was 17m long and 2.50m wide with irregular sides and base. Ditch [087] was dated to the 1st century BC/AD, making it either earlier than, or contemporary with, track [202]. Possibly it represents an abortive attempt to construct track [202]. If it was contemporary, it may have fulfilled the function later taken on by path [085]. This would go some way to explaining the irregular sides and base. If it had been originally lined with a metalled surface (such as those used in path [085] and track [202]), the robbing process, and indeed the stones themselves, would have left fairly significant scars on the profile of this feature. Ditch [087] was more truly aligned with track [202] than the later addition of path [085], reinforcing the probability that it was associated, and contemporary, with it. Within the fill of ditch [087] was the only sherd of grog-tempered briquetage retrieved from the site, presumably reflecting the production of salt within the south Dorset region and, more locally, in Wyke Regis itself. After initially silting up through natural deposition, a moderate amount of large sub-rounded and sub-angular pebbles were dumped into the cut.

A circular pit [187] was located just to the south-east of track [202]. It measured 3.35m in diameter and was 0.80m deep with regular, concave sides and a concave base. The natural clay into which it was cut was discoloured by heat action to a dark red. Lining the base and sides of the cut were large fragments of Portland Limestone, which had also been heat altered to a dark red colour and reduced to a crumbly, fragmented texture. This was covered with a thin deposit of ash, which was in turn covered by a deposit of grey sandy silty clay. A second cut truncated this latest fill. This recut was a final attempt to keep pit [187] operational before its disuse was marked by the collapse deposit of heat-altered stone, probably the upper part of the stone lining or possibly part of any superstructure that may have covered it. The concentration of stone in this fill was probably the result of deliberate demolition activity. Overlying this were two further fills with small to moderate amounts of stone inclusions, considered to be the result of a natural silting process. Unfortunately no datable evidence was retrieved from this feature. This feature was attributed to this period of activity based entirely on its proximity to track [202] and structure [209] (see below) and the nature of the feature. Clearly it was deliberately constructed with a specific function in mind, quite different from any of the other pits on the site. The state of the heat-altered natural clay and stone lining suggests the feature was in use for a protracted period of time and/or was intensively used. Although the function of this pit, beyond heating, is not known, it is reasonable to postulate that, situated in the niche formed by structure [209] and track [202], it performed a service not unrelated to these features and possibly played a part in ritual activity associated with the burials to the east.

Linear feature [209] was aligned north-west/south-east, at right-angles to track [202] and immediately to the north of pit [187]. It was 5.50m long, 0.65m wide and approximately 0.11m deep, filled with sub-angular stone within a matrix of redeposited natural clay. Considering it in relation to the significant surrounding features, track [202] and pit [187], it is possible that structure [209] was a path providing greater access to pit [187] as part of a ritual, ceremonial function. However, the lack of datable evidence from this feature does mean it is quite possible that structure [209] was entirely unrelated to these other features.

A second linear, stone-packed feature [139/140], was located in the north-east corner of the site. It was 4.50m long by 1.00m wide, ran on the same alignment as structure [209] and was of a similar build, albeit incorporating a mixture of sandstone and limestone. A large, unmarked slab was laid flat over the north-west end. Possibly this feature was a path or walkway, or even a boundary marker. On the basis of the dating evidence it is fairly certain that this feature was contemporary with track [202] and although geographically set apart from it and its associated features, it must be considered as being in some way associated given the similarities in build, alignment and date. Two post-holes were recorded to the south-east and south-west of structure [139/140], each approximately 3.00m away from it. One of these [126] contained datable evidence suggesting that it was contemporary with structure [139/140]. Although these features form an awkward angle, it is possible that they are related to structure [139/140]. It may be that further post-holes have been lost to truncation in this area, given the relatively shallow depth (0.15m) of the two recorded.

Period IIIB: AD 100–300 (Fig. 3)

To the south-west of track [202], a linear feature [085] ran on the same alignment and partially overlay the track, running some 48m to the limit of excavation at the south-west. It was constructed in a similar way to track [202], in that it comprised a shallow cut lined with a metalled surface and a stepped south-east edge, but this feature was only 3.25m wide. No datable evidence was retrieved from this feature although it did cut through the trample layer overlying track [202], dating it to at least the 2nd–3rd century AD. Given the similarities of alignment and build it is likely that path [085] was a later attempt to extend or replace track [202], the narrower width possibly being the result of time or resource constraints. Overlying path [085] and track [202] was a spread of colluvial deposition. An *intaglio* finger ring (Fig. 4, SF7) with 'hunched shoulders' was retrieved from this deposit and dated to the 3rd century AD. The corner fragment of a large stone basin was also recovered from this deposit. Made from a shelly white oolitic limestone, it was thought (see below) that this was probably part of a garden feature in a high-status villa, although no records of such a dwelling are recorded in the immediate vicinity of the site.

The latest activity in the north-west corner of the site was a robbing cut [199] of at least 3rd-century AD date, measuring 7.50m by 5m. This appeared to be focused on the metalled surface within terrace cut [208] and probably represents a period of abandonment, when the primary function of the site, that of a burial ground, had become defunct and its associated elements were prone to robbing activity.

Several linear features, thought to represent boundary ditches, were recorded predominantly in the south-east corner. Generally these were aligned roughly east–west and were naturally silted up over a period of time. Ditch [049] was excavated in three slots, the fills yielding pottery sherds dating from the 8th–5th century BC through to the 2nd century AD. It is possible that the earlier pottery was residual but given that the site was being used for burial at this time it is feasible that these features, boundary ditches or otherwise, were present and in use over an extensive period of time. Once silted up, an attempt to recut ditch [049] (recorded as ditch [160]) was undertaken but the effort appears to have been short-lived with pottery from the silted-up fill dating to the 2nd century also.

Two graves were recorded in the north-east corner of the site. Grave [019] was aligned east–west and contained the skeleton of a female aged 45 years at death. Pottery sherds from the fill dated the grave to the 2nd century AD. One coin retrieved from the fill (No. 1 see below) was dated to AD 77–79.

Grave [110] was located approximately 12m to the north of grave [019] and was formed of a shallow cut containing only 25% of the skeletal remains and no grave goods. The skeleton was of an adult of unidentified sex. The grave was sub-oval in shape, probably the result of later truncation given the depth of the cut and the amount of absent bone. As it was undated, grave [110] has been tentatively placed in this last period of archaeological activity.

Various other pits and post-holes were identified in this north-east corner of the site but formed no pattern and remain of unknown function. The only obviously structural feature in this corner was structure [139/140] but only the two aforementioned post-holes were contemporary with it. Given the lack of configuration to the remaining post-holes, it is possible that these represent some form of boundary fence. Sealing most of these features (Fig. 3) was a layer of packed stone with pottery sherds (079) dating to the 1st and 2nd centuries AD. This was recorded as being 15m long by 6m wide although its full extent was not apparent as it continued beyond the eastern and northern limits of excavation. It was similar to the metalled surfaces contained within terracing cuts [208] and [022] but no cut was apparent here although it seems quite likely that the ground would have been levelled in preparation for the metalling, consequently horizontally truncating the features physically below it. Such activity would explain the presence of disarticulated human bone within and above this layer. This disarticulated bone was retrieved from layer (125) (in fact part of packed stone layer (079)) and (067), a trample layer overlying this packed stone. How it relates, if at all, to these earlier metalled surfaces is not certain. The dating evidence places it some two to three centuries later than these earlier features. It seems most likely that it probably did perform a similar function – that of providing a flat, consolidated platform – but may well have been unrelated to the general purpose of the site as a burial ground, considering its later date and the lack of concern demonstrated in truncating earlier burials such as grave [110].

A grave [071] was recorded in the south-east corner. This was an oval, gradually sloping cut with a flat base measuring 1.00m east–west by 0.75m north–south (the southern extent being truncated by later activity). Grave [071] contained the skeleton of an adult female but no further interpretation of the remains could be made and the grave remains undated. For this reason grave [071] has been placed in the latest period of archaeological activity on the site.

Five post-holes [211], [169], [170], [171] and [172] formed a 'dog-leg' at the eastern extent of the site. Post-hole [211] cut ditch [049] but other than this there was no way of dating these features. All these post-holes were shallow (surviving to no more than 0.13m deep) and had an average diameter of 0.80m. All bar [171] were stone-packed and it would appear that these post-holes were designed to hold fairly substantial posts. No further evidence was identified for the structure, but it is possible that the post-holes were part of a fenceline that was related to the earlier ditched boundary [049] as they appear to be on the same alignment as, or at right-angles to, this boundary.

Three further post-holes [098], [101] and [104] were recorded at the eastern edge of the site. These were similar in shape and size (approximately 0.55m in diameter and 0.46m in depth) and were all stone-packed. No datable evidence was recovered and, although in close proximity and build, these features did not present an obvious shape in plan. Although their overall function remains unclear, their size and packing would suggest they formed part of a fairly substantial structure.

Discussion

Among the earliest features recorded on the investigation site were two graves [121] and [112] dating to some point between the 8th and 2nd centuries BC. Both graves contained crouched female skeletons, similar in burial tradition to the surrounding area such as the Late Iron Age burials [305] and [934] found at Alington Avenue (Davies *et al.* 2002) and Poundbury hillfort where 'all the inhumations identified within the Late Iron Age share a commonality of burial rite, in that there is a predominance of crouched inhumations' (Gale 2003, 133). These features represent the begin-

ning of the primary function of the site as a cemetery that was to continue until its abandonment in the 3rd century AD. Although only two graves were found dating to this period it should be noted that other graves may have been lost to later truncation; Roman layers (067) and (125) contained amounts of disarticulated human bone. Those few other features on site that belonged to this phase of activity were not obviously linked with such use of the area, being pits or linear features. Track [202] strongly suggests that some form of activity occurred further to the north of the site, quite possibly a larger, more densely populated, burial ground. The Historic Environment Record for the area notes six burials found in the late 19th/early 20th century in the area to the north-east, now occupied by a reservoir. Of these, one was Romano-British, the remainder were undated. That is not to say, however, that this postulated burial ground only came into existence with the creation of the track. The burials excavated on the investigation site amply demonstrate that the general area was performing this function some considerable time before the track came into being, and it would seem quite logical to situate such a site at the top of the hill, commanding spectacular views over the sea to the south. Considered from this perspective, graves [112] and [121] may represent the beginnings of an 'overflow' burial ground or, perhaps a lower-status burial ground. Where identification was possible, all the burials on the investigation site were female with few, if any, grave goods.

The function of the metalled surfaces within terrace cuts [208] and [022] was not clear. Possibly it was somehow related to the burials. It was geographically relatively close to the two early burials but beyond that the link is not obvious. In terms of its build the terracing is similar to metalling (079), albeit of earlier date. Possibly these surfaces were a form of ritual platform? Where the early terracing was not truncated, the surface was free of indentation or rutting, suggesting it was not subject to heavy use. However, this feature was heavily truncated by track [202], suggesting that whatever its function was, it had become defunct by the 1st century AD. Whether its function was related to the burials or not cannot be stated with certainty and so it is not possible to say whether its cessation of use has any bearing on our understanding of the site as a whole.

The compacted metalled surface of track [202] combined with the curbing stones to give the visually most impressive feature on the site. Together with pit [187] and structure [209], the site began to take on a more coherent form. The aesthetic harmony created by the situation of pit [187] to the southern extent of track [202], enclosed within the right-angle created by structure [209], seems too contrived to be coincidence. This coherency is possibly the result of Roman influence being brought to bear. The presence of Roman coins within the make-up of track [202] and the proliferation of Black Burnished ware on the site does demonstrate that Romanisation had been adopted to some extent in Wyke Regis.

Evidently track [202] led up the hill to the north. As mentioned above, burials have been noted to the north of the site below what is now a reservoir, lending greater credence to the notion that there was a cemetery of sorts to the north, and the burials located during the excavation were related to these. The lack of wear on the track does suggest that this was not heavily used by vehicles and the interpretation that it was a ceremonial trackway seems convincing in light of this. The abrupt terminus of the track at the south end would also suggest that, at the very least, this feature was not utilitarian. It can have been of little use as a means of practical conveyance, given that it only led to pit [187]. It is possible that pit [187] was actually the starting point for a ritual ceremony progressing up the hill to the postulated burial site at the summit. This would imply that pit [187] performed a function of some considerable importance, a conclusion supported by the length of time it appeared to have been in use and the notion that structure [209] was a metalled path designed to allow greater access and visibility around pit [187].

Despite this apparently more cohesive approach to the layout of the site, the later addition of path [085] to the south of track [202] in the 1st–3rd century AD was evidently an afterthought. What precipitated its addition is not clear, as it extends beyond the limits of the site. There is no mention of any finds in this area listed in the Historic Environment Record. The alignment and build are within the standards set by the original track [202], albeit somewhat narrower and on an angle closer to true north. Based on this evidence it does appear to be a later extension to the original track. Possibly this was due to increased use of the site.

Several pits and post-holes were located across the north-east and south-east areas of the site over a broad timeframe. It is possible that further excavation to the east might have given these features a pattern or clarified their function, although the evaluation trenches indicated the area was barren of archaeology. It seems unlikely, given the lack of pattern to these features, that they represent substantial, upstanding structures. Most probably they are the remnants of boundary markers or fences, possibly related to, or replaced by, the boundary ditches that were broadly focused in the south-east corner and possibly delineate the southernmost extent of the burial area. Several of these features had silted up over a long period of time and in one case [049], had been recut [160], confirming a longevity of use largely in tandem with the employment of the site as a whole.

In summary, the site appears to have begun life in the Middle to Late Iron Age with the landscaping activity of terracing [022]/[208] and burials [112] and [121]. Burial at the site began in the Iron Age and continued into the Roman period with no apparent change in ritual. As seen at the site, there is a preponderance of

crouched inhumations in Late Iron Age Dorset, which is thought to be a burial rite associated with the *Durotriges* (Gale 2003). Over the following centuries the site was developed to acknowledge the importance of the area as a burial ground with a ceremonial track [202] and its possibly associated features, stone structure [209], and pit [187]. Boundaries are hinted at in the form of linear ditches and post-holes, largely focused in the east.

Most apparent for a burial site is the relatively small number of graves. It was noted that these graves were all shallow (no more than 0.32m deep), probably as a result of later, horizontal truncation. It is possible that some graves may have been entirely removed, either by modern allotment activity, or by earlier cut features. The presence of metalling (079) demonstrates that graves were not necessarily accorded the greatest respect with the passing of the years.

It is important to stress the location of the site being on the side of, rather than at the summit of, the hill. It is quite probable, as indicated by the presence of track [202], that the Glebe Allotment site was actually the periphery of a more significant site to the north.

Finds

Human bone

Terry Jackman and Melissa Melikian

In total, five articulated individuals were recovered from inhumations as well as disarticulated bone recovered from later contexts (067) and (125). All the skeletons were incomplete with few of the long bones and skulls intact. None of the burials displayed good surface preservation and generally the exterior cortical surfaces were eroded with many of the articular ends missing. The burials were heavily truncated and in only two cases were more than 50% of the skeleton represented. These factors had implications for the level of analysis that could be carried out. The results of the osteological analysis are summarised in Table 1.

Pottery

Rachael Seager Smith and Lorraine Mepham

In total, 864 sherds, weighing 11,490 g, were recovered during the excavation. Just over one-third of these are of Early to Middle Iron Age, with most of the remainder of Late Iron Age to Romano-British date. Among the latter group are sherds of briquetage, special containers made for the manufacture and transport of salt. In addition, six pieces of modern (post-1800) pottery were identified, probably relating to the recent horticultural use of the site; these are not discussed further here.

In general the condition of the assemblage is good. The sherds are of small to medium size (mean sherd weight 13g) although comparatively few featured sherds were found, especially among the Early/Middle Iron Age material.

Analysis has focused on the Iron Age material, which is described and discussed in detail here, within its local and regional context. Romano-British pottery, being better understood and more fully published in this area, has been treated in less detail.

Early/Middle Iron Age pottery

A total of 334 sherds has been assigned to this period. Analysis of this part of the assemblage has followed nationally recommended guidelines (PCRG 1997). A number of fabric types have been defined and coded on the basis of dominant inclusion type; these fall into calcareous (Group LI), flint-tempered (Group FL) and sandy wares (Group QU).

The predominant fabric types are calcareous, mainly oolitic, but with some shelly limestone and some 'beef' calcite. Flint-tempered and sandy fabrics are present in much smaller proportions. All the inclusion types would be consistent with manufacture within the local area, i.e. within a 10km radius of the site (Arnold 1985, 50). The only possible exceptions are the flint-tempered fabrics, which are rare within Dorset at this period; well-sorted flint-tempered fabrics such as FL/2 have been identified at Hengistbury Head as possible regional imports from the Middle Iron Age saucepan pot ceramic tradition of Hampshire (Cunliffe and Brown 1987, 306–7).

Diagnostic sherds are scarce, and few vessel forms can be identified. At least one fineware carinated bowl (fabric QU/1) is present, with a rim possibly from another such bowl (fabric LI/5). One shouldered jar has slashed decoration (fabric LI/6), and there are other sherds from shouldered jars. Other forms include a probable saucepan pot rim, and sherds from slack profiled jars, bowls with slightly expanded rims and evert-

Table 1: The human bone from Wyke Regis

Skeleton no.	Preservation	Completeness %	Sex	Age (years)	Pathology
018	Moderate	80	?Female	45+	Osteoarthritis
070	Poor	20	?Female	Adult	–
109	Moderate	25	Unidentified	Adult	Periostitis
113	Poor	25	Female	25–35	–
120	Poor	65	?Female	35–45	Osteoarthritis

ed rim jars. A small number of sherds are red-finished ('haematite-coated').

The fabrics, forms, decoration and surface treatment represented here are well paralleled on sites of Early to Middle Iron Age date in south Dorset, in particular Rope Lake Hole (Davies 1987), Eldon's Seat and Kimeridge (Cunliffe and Phillipson 1969), Hengistbury Head (Brown 1987) and the Wytch Farm oilfield (Lancley and Morris 1991), but perhaps the closest comparisons can be found within the assemblage from nearby Sutton Poyntz (Mepham in prep), although the relative proportions of the fabric groups represented at the two sites does vary, with Sutton Poyntz producing a much higher proportion of sandy wares.

The scarcity of diagnostic material within the Glebe Allotments assemblage does not make close dating easy, but it is possible to locate the assemblage broadly within the overall ceramic sequence for south Dorset, for which a three-fold division has been suggested, on the basis of evidence from some of the sites already mentioned:

Ceramic Phase 1 *Eldon's Seat I:* Coarse, bucket-shaped jars and large bipartite jars. 'Earliest' Iron Age, *c.* 800–600 BC.

Ceramic Phase 2 *Kimmeridge II/Rope Lake Hole 1:* Coarse, shouldered jars, often finger-impressed on the shoulder; smaller, ovoid jars, frequently decorated and red-finished; bipartite furrowed bowls, invariably red-finished; bipartite, shouldered bowls, generally decorated above the shoulder, occasionally red-finished. Early Iron Age, *c.* 600–400 BC.

Ceramic Phase 3 *Eldon's Seat II/Rope Lake Hole 2:* Wide, open bowls with flat-topped, internally expanded rims; large, slack-shouldered jars, sometimes red-finished; coarse jars of various sizes, rarely finger-impressed; globular jars with everted rims, frequently decorated with bosses; carinated bowls, generally red-finished; bucket-shaped, plain vessels. Middle Iron Age, *c.* 400–200 BC.

The Glebe Allotments assemblage includes elements from both ceramic phase 2 (coarse, shouldered jars; fineware bipartite bowls) and ceramic phase 3 (open bowls; slack-shouldered jars), which would suggest a potential date range of 6th to 3rd centuries BC. However, the small size of the assemblage overall, the paucity of large context groups and lack of a stratigraphic sequence of any length means that there is no conclusive evidence to support the division of this assemblage into two ceramic phases. All that can be suggested is that the relatively low proportion of sandy wares indicates a potential date earlier within the suggested range rather than later, since sandy wares have been observed to increase at the expense of other wares from the Middle Iron Age (e.g. Davies 1987, 151 and fig. 83).

Late Iron Age/Roman pottery

The dominance of the Black Burnished ware industry of the Wareham/Poole Harbour region from the Late Iron Age is well documented within Dorset and the surrounding counties, and is marked here by the appearance of *Durotrigian*-type Black Burnished wares by at least the 1st century AD, and possibly earlier. The *Durotrigian* types continued in production into the Roman period, when they were supplemented and gradually superseded by a variety of new forms after the conquest, although still essentially retaining the character of a native industry. The Black Burnished wares are defined and coded within the Wessex Archaeology regional type series (codes E101 and E102; for full descriptions see Seager Smith and Davies 1993).

The earliest vessel forms present include such 'classic' *Durotrigian* forms as bead-rim jars and bowls and large storage jars with inturned, triangular-sectioned rims. These are generally dated from the 1st century BC, although some examples of everted rim jars could be of slightly earlier date – these forms originated in the Middle Iron Age (Lancley and Morris 1991, form type 133). Later forms – everted rim jars, dog-dishes, flat flanged bowls/dishes, dropped flange bowls/dishes – date from the middle of the 2nd century AD onwards (Seager Smith and Davies 1993, 231–5). The proportion of South-western Black Burnished ware (E102) is perhaps lower than might be expected – only 28 sherds were recognised – but this may be due to chronological factors. In south Dorset, this fabric declines in importance from the middle of the 2nd century AD. The few sherds of New Forest colour-coated ware, which date from *c.* AD 260/270 onwards (Fulford 1975) emphasise the importance of the later Roman material.

With the exception of one plain body sherd of Micaceous Terra Rubra, all the imported finewares are samian from southern, central and eastern Gaulish sources. Vessel forms include the cup forms 27 and 33, platter form 31, bowl form 37 and mortarium form 45. One small sherd from a closed vessel, probably form 67, was also recognised. The samian spans the period of samian importation into Britain from the later 1st to mid-3rd century AD.

Amphora sherds were found in three contexts. Three of the amphora sherds belong to Peacock and Williams' class 25 (Dressel 20) which carried olive oil from southern Spain (1986, 136–40). One of these sherds has had a hole drilled through the wall after firing, presumably in an attempt to repair the vessel. The fourth amphora sherd is of a type less common in Britain, which was imported from Normandy during the mid-2nd–3rd century AD (*ibid.*, 210–11, class 55).

Briquetage

With one exception, a grog-tempered sherd from ditch [087], all the briquetage is of the very coarse Hobarrow Bay fabric (Farrar 1975). Few featured sherds

are present but a base angle, possibly from a roughly rectangular vessel of the 'Hobarrow pan' type (*ibid.*), was identified. These briquetage sherds are probably of Late Iron Age/Early Roman (*c.* 1st century BC/AD) date; evidence for salt production is well documented at various sites in south Dorset from the Early Iron Age onwards, mainly in Purbeck but with some outliers, including one site at Wyke Regis (Bailey 1962; Farrar 1975).

Coins

AOC Archaeology Group

In total, seven coins were recovered. Of these, five are from the Roman period, and one is a penny of George III minted in 1808. The remaining coin was identified as a large bronze unit minted at the Greek city of Syracuse, on the island of Sicily, in the 3rd to 4th centuries BC. Obviously not widely used in Britain and recovered from an unstratified deposit, it is likely that the coin was lost in modern times by a collector of classical coins.

The five Roman coins range in date from the 1st to 4th centuries AD and are of varieties commonly found in Britain. While the assemblage is unremarkable and very small, it appears as though the Roman coins cluster in two groups; the earliest group (nos 1–3) is from the late 1st to mid-2nd centuries, while the two coins of the later group (nos 4 and 5) belong to the house of Constantine and were minted in the mid-4th century.

Of the first group, the earliest coin is an *As* of the emperor Vespasian, minted in *Lugdunum* (Lyon) during the years AD 77–79 and is in a slightly worn condition.

Table 2: The coins from Glebe Allotments, Church Knapp, Wyke Regis

No.		Ruler	
1		VESPASIAN	
Obv CAES VESPASIAN AVG COS VIII PP			
Rev FORTUNAE [REDVCI] SC; Fortuna standing l., with palm and cornucopia			
den: AS	diam: 27mm	wt: 12.5g	cond: SW/C
cat: RIC II 761	date: 77–79	mint of Lugdunum	
2		TRAJAN	
Obv [IMP CAES NERVAE TR]AIANO AVG GER DAC P[M TR P COS V P P]			
Rev [SPQR OPTIMO PRINCIPI] SC; Abundantia standing l., with corn and cornucopia; to lower l., modius, to lower r., prow			
den: SEST	diam: 33mm	wt: 24.0g	cond: C/EW
cat: as RIC II 480	date: 103–11		
3		ANTONINUS PIUS	
Obv [ANTONINVS AVG P]IVS [P P TR P XVIII]			
Rev LIBERTAS COS IIII SC; Libertas standing l., with pileus and sceptre			
den: DUP	diam: 24mm	wt: 10.6g	cond: C/W
cat: as RIC II 933	date: 154–55		
4		CONSTANS	
Obv DN CONSTANS PF AVG			
Rev FEL TEMP REPARATIO AQS; Hut and barbarian (3)			
den: AE	diam: 21mm	wt: 3.0g	cond: SW/SW
cat: LRBC II 888	date: 346–50	mint of Aquilla	
5		CONSTANTIUS	
Obv CONS[TANTI]VS PF AVG			
Rev [FEL TEMP REPARATIO] ///; Fallen horseman (3)			
den: AE	diam: 13mm	wt: 0.9g	cond: VW/EW
cat: as LRBC II 675	date: 352–54	mint unknown	
6		GEORGE III	
Obv GEORG[IVS] III D G REX			
Rev BRITANNIA; Britannia seated l.			
den: penny	diam: 28mm	wt: 8.6g	cond: VW/VW
cat:	date: 1808		
7			
Obv –			
Rev Horse(?) running l.			
den:	diam: 27mm	wt: 13.4g	cond: damaged
cat: as *BMC Syracuse* 311	date: 3rd–4th century BC		

BMC Syracuse = Head 1876
LRBC = Carson and Kent 1960
RIC = Mattingly and Sydenham 1926; 1930

The other two coins in this group are a *sestertius* of Trajan (AD 103–11) and a *dupondius* of Antoninus Pius (AD 154–55).

The two coins of the later group are both small module AE pieces, one of Constans (minted in *Aquilla* in AD 346–50) and one of Constantius dated to 352–54.

The five Roman coins from the assemblage are too few to allow for any degree of reliable analytical comment. However, it would appear as though the two clusters of coins represent two phases of activity in the immediate or nearby vicinity. The coins of the earlier group, particularly the *As* of Vespasian, are relatively unworn and do not appear to be residual in nature. Similarly, the second group of coins suggests renewed activity in the area in the mid- to late 4th century.

Details of the coins are given in Table 2. The condition of the coins is indicated by the following abbreviations:

UW unworn, as new
SW slightly worn, minimal loss of the highest relief
W worn, loss of detail but images and legends visible
VW very worn, images and legends visible but difficult to determine
EW extremely worn, most typological elements lost, flat surface
C corroded; degree of wear prior to coin loss impossible to ascertain

Stone

Ian M. Betts (Museum of London Specialist Services)

Two stone artefacts were recovered from the site. It was not clear whether a small piece of purplish-red partially laminated siltstone or uncertain quarry source was artificial or natural. If the former, then it is possible the hole marks the attempt to make a spindle whorl. If the hole is natural then the stone may represent nothing more than a crudely shaped gaming piece. The second piece was the corner fragment of a large stone basin made from a shelly white oolitic limestone from the nearby Portland Stone quarries. It is difficult to be certain from such an incomplete fragment how the basin was used, although it may well have formed part of a garden feature in an upmarket rural villa. Basins as decorative features in gardens are known from sites across the Roman world, such as in the House of the Vettii in Pompeii (Farrar 2000, 112).

The worked flint and chert

Philippa Bradley (Museum of London Specialist Services)

Forty-four pieces of chert and 14 pieces of flint were recovered from a range of contexts across the site, all of which dated to the later prehistoric and post-conquest periods. The material is therefore redeposited but does provide evidence for activity, probably of Neolithic or early Bronze Age date. The presence of chert and flint chips may suggest that knapping was occurring on site or that knapping debris was being deposited. With such a small sample of material it is difficult to be sure whether *in situ* knapping was taking place or that rubbish, including knapping debris, was being deposited.

The metalwork assemblage (excluding coinage)

Holly Duncan (Albion Archaeology)

The excavations at Wyke Regis produced a small assemblage of eight items of copper alloy and iron, seven of which derived from phased deposits. The majority of these were waste deposits. Remains of two knives (Fig. 4) have been tentatively assigned to two of Manning's Roman knife types (1985, 108–120), but due to their incomplete survival the possibility that they may belong to medium-sized shears should not be overlooked. Only one item of personal adornment was found and this comprised a fragment of an Aucissa brooch (Fig. 4). Although only part of the head and beginnings of the bow survive, it displays many of the characteristic traits of this brooch type, defined as having a broad flat bow, with distinctive arched semi-circular profile,

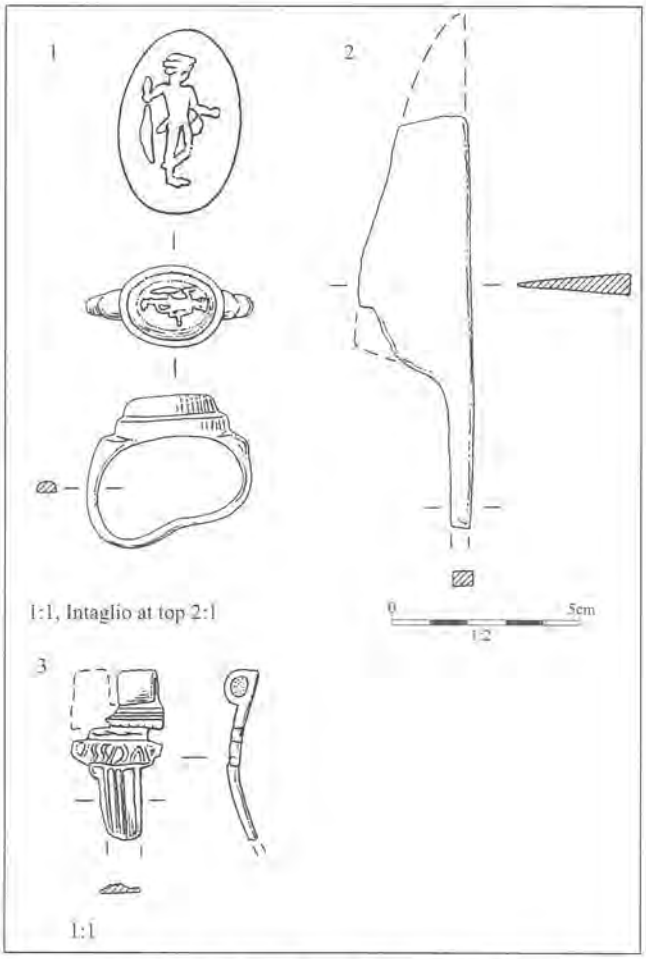


Figure 4: Metal finds. 1, SF7 from Context (084) Intaglio finger ring of blue glass paste with 'hunched shoulders', dating to the 3rd century AD; 2, SF16 from Context (068), iron knife with straight back and straight or slightly convex blade edge dating to the 1st century AD; 3, SF17 from Context (068), fragment of an iron Aucissa brooch dating to c. AD 60–65

the head rolled forward over the axial bar, which is often, as in this instance, of iron, and a flat head carrying transverse mouldings and a pair of lateral notches (Crummy 1983, 8; Olivier 1988, 46). The only artefact deriving from later deposits was an intaglio finger ring (Fig. 4) from colluvial deposits (084) overlying track [202]. The ring has 'hunched shoulders' (Henig Xb) and a clear demarcation between the shoulder and the bezel. The oval intaglio with flat face and straight, slightly tapered, sides is of blue glass paste. Henig notes that glass gems, of varied colours, came to be replaced almost entirely by pastes imitative of blue nicolo in the 2nd and 3rd centuries (1978, 31). The ring shape is dated to the 3rd century (Johns 1996, 50).

BIBLIOGRAPHY

Arnold, D.E., 1985 *Ceramic Theory and Cultural Process*, Cambridge University Press.

Bailey, C.J., 1962 'An early Iron Age B hearth site indicating salt-working on the north shore of the Fleet at Wyke Regis', *Proceedings of the Dorset Natural History and Archaeological Society* **84**, 132–6.

Bishop, M.C., 1998 'Military equipment', in H.E.M. Cool and C. Philo, *Roman Castleford Excavation 1974–85: Volume I The Small Finds*, 61–81.

Brown, L., 1987 'Late prehistoric wares', in B. Cunliffe, *Hengistbury Head, Dorset Volume 1: the prehistoric and Roman settlement, 3500 BC–AD 500*, Oxford University Committee for Archaeology **13**, 207–66.

Carson, R.A.G. and Kent, J.P.C., 1960 *Late Roman Bronze Coinage*. London.

Crummy, N., 1983 *Colchester Archaeological Report 2: The Roman small finds from excavations in Colchester 1971–9*.

Cunliffe, B. and Brown, L., 1987 'Production, trade and exchange', in B. Cunliffe, *Hengistbury Head, Dorset Volume 1: the prehistoric and Roman settlement, 3500 BC–AD 500*, Oxford University Committee for Archaeology **13**, 303–21.

Cunliffe, B.W. and Phillipson, D.W., 1969 'Excavations at Eldon's Seat, Encombe, Dorset, England', *Proceedings of the Dorset Natural History and Archaeological Society* **34**, 191–237.

Davies, S.M., 1987 'The coarse pottery', in P.J. Woodward, 'The excavations of an Iron Age and Romano-British settlement at Rope Lake Hole, Corfe Castle, Dorset', in N. Sunter and P.J. Woodward, *Romano-British Industries in Purbeck*, Dorset Natural History and Archaeological Society Monograph **6**, 150–57.

Davies, S.M., Bellamy, P.S., Heaton, M.J. and Woodward, P.J., 2002 *Excavations at Alington Avenue, Fordington, Dorchester, Dorset, 1984–87*. Dorset Natural History and Archaeological Society Monograph **15**, Dorset.

Dockrill, S.J., 1981 'Late Iron Age and Romano-British Site at Wyke Regis, Dorset', *Proceedings of the Dorset Natural History and Archaeology Society* **103**, 131–32.

Farrar, L., 2000 *Ancient Roman Gardens*. Sutton Publishing, Stroud.

Farrar, R.A.H., 1975 'Prehistoric and Roman saltworks in Dorset', in K.W. de Brisay and K.A Evans (eds), *Salt: The Study of an Ancient Industry*, Colchester, 14–25.

Fulford, M.G., 1975 *New Forest Roman Pottery*, Oxford, British Archaeological Reports Brit. Ser. **17**.

Gale, J., 2003 *Prehistoric Dorset*. Tempus, Stroud.

Green, M.J., 1994 *The Gods of Roman Britain*. Shire Archaeology.

Head, B.V., 1876 *A Catalogue of the Greek Coins in the British Museum: Syracuse*. London.

Henig, M., 1978 *A Corpus or Roman Engraved Gemstones from British Sites*, Oxford, British Archaeological Reports Brit. Ser. **8**.

Johns, C., 1996 *The Jewellery of Roman Britain*. University College London Press.

Lancley, J. and Morris, E.L., 1991 'Iron Age and Roman Pottery', in P.W Cox and C.M. Hearne, *Redeemed from the Heath The Archaeology of the Wytch Farm Oilfield 1987–90*, Dorset Natural History and Archaeology Society Monograph **9**, 114–36.

Manning, W.H., 1985 *Catalogue of the Romano-British Iron Tools, Fittings and Weapons in the British Museum*. British Museum.

Mattingly, H. and Sydenham, E.A., 1926 *Roman Imperial Coinage*, Volume **2**. London.

Mattingly, H. and Sydenham, E.A., 1930 *Roman Imperial Coinage*, Volume **3**. London.

Mepham, L.N., in prep., 'The Iron Age pottery', in M.N. Rawlings, *'Excavations at the Sutton Poyntz Water Treatment Works, Dorset 1993–94'*.

Olivier, A., 1988 'Brooches', in T.W. Potter and S.D. Trow, *Puckeridge–Braughing, Hertfordshire The Ermine Street Excavations 1971–72*. Hertfordshire Archaeology Volume **10**, 35–53.

PCRG (Prehistoric Ceramics Research Group), 1997 *The Study of Later Prehistoric Pottery. General Policies and Guidelines for Analysis and Publication*. Salisbury Prehistoric Ceramics Researc Group.

Peacock, D.P.S. and Williams, D.F., 1986 *Amphorae and the Roman Economy: an introductory guide*. Longman, London.

Seager Smith, R.H. and Davies, S.M., 1993 'Roman pottery', in P.J. Woodward, S.M. Davies and A.H. Graham, *Excavations at the Old Methodist Chapel and Greyhound Yard, Dorchester 1981–4*, Dorset Natural History and Archaeological Society Monograph **12**, 202–89.

Smith, T.P., 2003 *Assessment of the building material from Glebe Allotments, Wyke Regis, Weymouth, Dorset (GAW98)*, unpublished AOC report.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 127–138

Maryland, Brownsea Island

MARTIN PAPWORTH
National Trust

In October 2007, an area on the north-west shore of Brownsea was cleared of scrub and for two weeks National Trust archaeologists and volunteers excavated the brick footings of a building, once the Bentinck Arms and part of the village of Maryland (SZ 0116 8827) (Fig. 1). This report is a record of the archaeology and history of this site.

Brownsea is the largest island in Poole Harbour. In plan it looks like a potato, an irregular elongated oval about 200 hectares in extent. Its geology consists of a mixture of glacial gravels and Tertiary clays and sands of the Bagshot Beds.

For much of the post-medieval period, settlement on the island has been split between homes for people employed in industry and those employed in coastal defence. The east end of Brownsea faces the mouth of Poole Harbour. Since 1547, when Henry VIII ordered a block house to be built, guns and boats have been located here and have been used to challenge vessels entering and leaving the harbour. In contrast, the useful geological deposits tend to have been worked on the south and west sides of the island.

Archaeologists are interested in settlement and settlement patterns and the reasons why settlements become established, develop, decline and are abandoned. Island settlements have that added, self-sufficient separateness that makes a place like Maryland of particular interest.

Maryland, for a time, became the principal population centre of Brownsea. The settlement was built in the 1850s to house the families of workers employed in mining clay and making and transporting clay products. After the business failed in 1885, it gradually became depopulated. The last few residents were evicted in 1934 and the buildings were then damaged by fire, hit by German bombs in 1942 and finally demolished in 1964.

The settlement consisted of five buildings arranged in an arc around a green that fronted the beach. Each of the buildings was divided into four tenements, therefore twenty homes were originally planned but later, as the population declined, many tenements were merged to create larger dwellings.

The Origin of Maryland

Maryland was named after Mary, the wife of William Waugh, a colonel of the British Indian Army. Mary discovered white porcelain clay while walking with her husband on the island, and in 1852, following confirmation of the geological value of the island's resources, Colonel Waugh bought Brownsea (Van Raalte 1906,

Figure 1: No. 1 Maryland, the Bentinck Arms

88–9). It was later found that the clay deposits were generally fit only for terracotta products. Nevertheless, the colonel invested a large amount of money in developing a state-of-the-art pottery and alum works and established a new community on the island. The developments he commissioned were lavish and ranged from his 60m long, three-floor factory at the west end of the island to the model farm, the gothic church and the sea wall enclosing St Andrew's Bay at the east end.

Maryland's residents were employed in Waugh's Branksea Clay and Pottery Company, which produced bricks, tiles and drain pipes. The houses were nearing completion in 1856 when Colonel Waugh went bankrupt. He had become a director and then chairman of the London and Eastern Banking Corporation. However, the bank became short of money and would not increase Waugh's loan. At this point he realised his extravagant Brownsea venture had failed and fled with his wife to Spain. The bank's principal mortgagee, John Jolly, then put the island on the market. By 1855 Waugh had become Jolly's tenant, paying him rent for the island.

The 1859 sales particulars (DHC Brownsea 167) describe the newly built village:

> Maryland Village is well situate at the North-Western Extremity of the Island, and was recently erected for the accommodation of the Pottery Workmen, and consists of Five Blocks of Brick-built and Slated Gabled Cottages, the Walls Compoed, and with Rustic Quoins, EACH BLOCK comprising FOUR DWELLINGS, containing TWO BEDROOMS, with TWO LIVING ROOMS, and PORCH ENTRANCE, and KITCHEN TO EACH, with their necessary Fixtures and Fittings. There are Eight Common Closets at Rear; one Block is in an unfinished state.

Two years later, the census noted that the four tenements at the west end of Maryland were still in an 'unfinished state' and unoccupied. It was this western building that was excavated in 2007. The two easterly tenements (3–4 Maryland) in this block were built to the same design as the sixteen dwellings further east but the two western tenements were different. The second tenement of the western half of the building had a longer kitchen. Added to the south side of this were two store rooms and a closet. The kitchen of the most westerly tenement (1 Maryland) was missing because the two westerly tenements had been merged into one. Where the kitchen should have been was a flagstone yard that continued to the door of the enlarged kitchen. The stone yard continued south as far as the back alley and gardens behind Maryland. Within the yard was a large steel rainwater tank. The Brownsea map accompanying the 1859 sales particulars shows the plan of this building exactly like the others and therefore these changes took place at a later date. The 1887 Ordnance Survey map (Fig. 2) indicates that two large rooms overlay the site of the missing kitchen and extended west of the building.

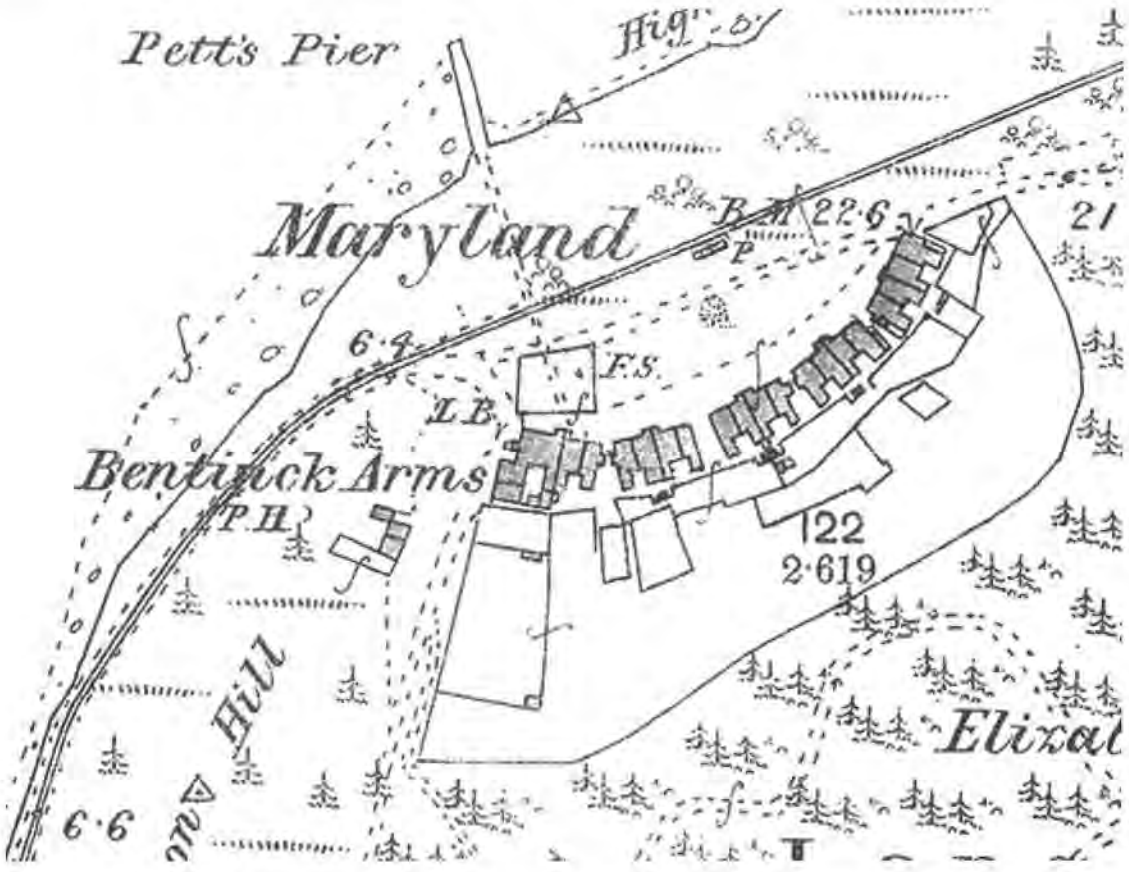


Figure 2: Extract from the Ordnance Survey 25 inch:mile Dorset Sheet L.4. surveyed 1887

The alterations to the normal design were made to accommodate the village shop, noted in the 1871 census, and the tap room and skittle alley (Battrick and Lawson 1978, 14) of the public house recorded in 1881. The 1887 map named the premises as the Bentinck Arms after the then owner, George Augustus Cavendish Bentinck, who in 1873 finally bought the island from John Jolly's son-in-law, Mr W.C. Faulkner, for £60,000.

Archaeology and Description of the Buildings

The excavations revealed that the plan of this western block consisted of an outer wall forming a rectangle 18m long and 7.5m wide. This wall was two brick widths thick (0.24m). It was divided internally into four tenements of equal size. Each wall was one brick wide and 4.5m from the next. The kitchens were also constructions with foundations 0.11m wide. The bricks used varied in quality but often they were warped and poorly fired; most were plain but some had shallow frogs. They match those produced in the island's brick kilns including the Barnes kilns on the south shore (Papworth 2005, 146).

The kitchens of the central tenements were back to back, either side of the central partition wall of the building. The kitchens of the end tenements extended from the back corners of each block. Each kitchen normally measured 2.5m wide and 3m long (except the Bentinck Arms kitchen which was 5m long), with range and copper built against the back wall. The back door of each tenement led from the kitchen at the point where the kitchen wall joined the main back wall of the building and faced the neighbours' kitchen door across a 4m wide back yard.

The excavated western building, like the other four, had four entrance porches, one at each gable leading into the end tenements and, for the centre tenements, two conjoined porches under a pitched slated roof located in the centre of the front elevation.

Against the south side of the east gable porch was a small shed with a brick floor used as a coal store, but the west porch did not have this. The porch thresholds were Portland stone steps and the floors were of Purbeck limestone flags. The interior floors had rotted but probably consisted of timber planking on raised joists. The positions of the interior floors were indicated where the line of pink cement plasterwork survived against the brick walls.

In the south-west corner of the main building, the rubble was removed to the natural sand level 0.7m below the plaster line (11). The lowest deposit consisted of 0.2m deep black ash with charcoal fragments mixed with burnt Welsh slate (10), the1.2m thick layer of brick and mortar debris lay above this (2, 3, 9). The evidence confirms that the building caught fire and the roof collapsed and later the walls either fell in or were demolished onto the charred deposits.

Very few artefacts were found within the building; it seems to have been cleaned out before it was abandoned.

Figure 3: Broken example of a decorative earthenware tile, a 'Rustic Quoin' of the 1859 sales particulars

There were no finds that would link 1–2 Maryland with its documented use as a pub and shop. Fragments of the burnt inner door of the west porch were found where it had fallen across the threshold. The brass door handle and iron lock were found. This blue painted door was locked when the building caught fire. Within the west tenement living room were found two metal picture hooks, presumably left fixed to the plaster before flaking from the wall into the accumulating rubble. The finds of shaped Welsh slate revealed that the roofs had been decorated in a fish-scale pattern. This design had also been used and still survives on parts of Waugh's model farm at the east end of the island, but much of this may be due to a reroofing with salvaged slates from Maryland *c.* 1963 (Barry Guest, pers. comm.). The slate roofs are indicated on surviving photographs of Maryland.

Pottery was only found outside the building on the garden terrace, where compost would have been dug into the sandy soil to increase the fertility of the allotments. The main midden or refuse heap of the settlement lay to the north-east where it is washed by the sea and here fragments of Verwood earthenware and blue and white and cream stonewares along with bottles and jars have been recorded.

The photographs of the front elevations of Maryland's buildings show the large sash windows, each with sixteen panes of glass. The windows were arranged symmetrically, four on each side of the central porch. A ground floor and a first floor window for each tenement with a plaster string course divided the upper and lower floors. Above the apex of the central porch roof was the outline of another window and above this a circular panel, both apparently blocked openings but perhaps decorative and never used. Above these features, the horizontal roof line of the building rose to form a gable to match the pitch of the porch roof below. The porch also had a circular panel below the pitch of the roof but smaller than that over the blocked first floor window. This has been described as containing 'a sort of crest' (Chapman n.d. unpublished, 107) but the significance of this design is unknown.

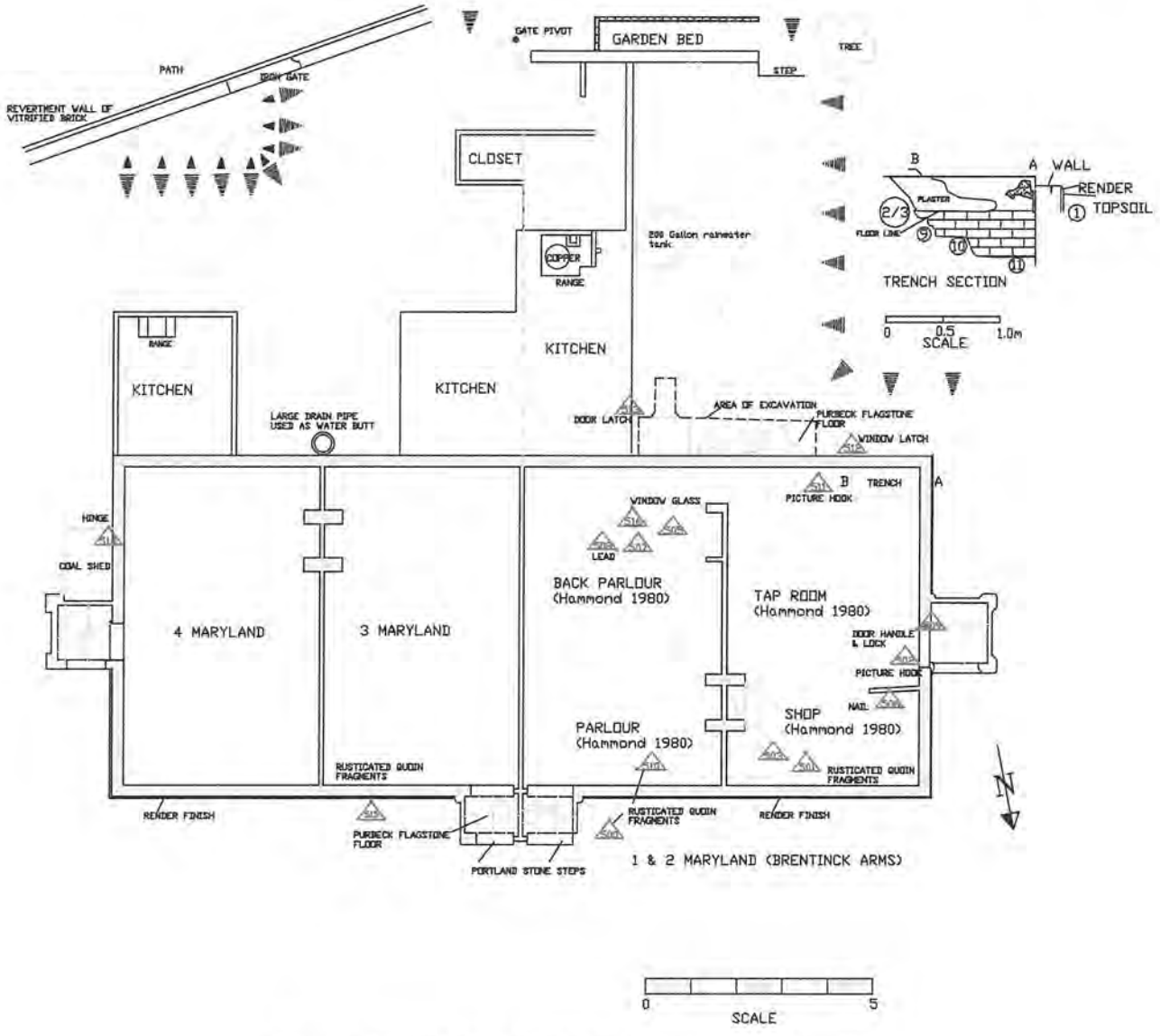


Figure 4: Plan of 1–4 Maryland following excavation October 2007

The gable ends of each building had centrally placed sash windows above the porches at first floor and also at attic level, suggesting second floor accommodation. However, the examples faintly visible on the available photographs indicate that these upper windows may have been blocked.

The gables were decorated with eaves boards and a pointed finial fixed to the ridge at each end of the building and over the central porches. There were two sets of chimney stacks to a building, each with eight chimney pots. Where they rose from the ridge crests, they marked the positions of the dividing walls between the first and second and the third and fourth tenement of each block. On excavation, it was clear that the two ground floor rooms of each tenement had fireplaces back to back and the eight chimney pots per stack indicate that each bedroom on the first floor also had a fireplace. Each kitchen had its own chimney to take the smoke from the range at its gable end.

There are only one or two photographs of the rear side of Maryland but one view taken from the Maryland cottage gardens shows that the pitched roofs of the kitchens only reached to sill height of the first floor windows. This explains the narrower foundations needed for the kitchens in comparison with those of the main building. There were four first floor windows on this side, one for each of the back bedrooms of the four tenements. The ground floor windows were positioned closer together, each placed left or right of its respective kitchen.

The excavations revealed the positions of two of Maryland's windows. These were indicated by finds of sash window catches. One adjacent to the back door leading into the Bentinck Arms kitchen gave light to the back room, probably once the pub bar, and one on the east side of the central porches would have illuminated the ground floor parlour of tenement three.

Maryland was built on level ground fronting the beach but behind the buildings there was room for only a narrow back alley before the ground sloped upwards. Vitrified bricks that once lined kilns were used as a 1m high revetment between the alley and the gardens behind. The alley allowed Marylanders to fetch water from the pump installed conveniently against the back wall of the middle tenements of the settlement. Leaning against the revetment wall was the frame of a large iron gate that once gave access to the pub back garden still fixed to its iron pivot against the kitchen range in 1979 (Hammond and Haskett 1980).

Colonel Waugh had commissioned attractive cottages for his workers, the brickwork 'compoed' or rendered in white cement plaster backed by fragments of Welsh slate. This material was moulded at the corners of the porches to suggest chamfered stonework. The windows and corners of the buildings were decorated with 'rusticated quoins'. These looked like carved stone when attached to the brickwork but were really tiles of a kind of brown earthenware shaped in a mould measuring about 20–30mm thick (see Fig. 3). One fragmented example was excavated from the east side of the central porch and when reassembled measured 300mm by 600mm.

A photograph of Maryland taken from Poole Harbour (Fig. 5) reveals the architectural composition of this group of buildings. It shows that each of the five buildings had the gable above the pitched roof of the

Figure 5: Maryland from Poole Harbour from 1927 sales catalogue National Trust Brownsea Archive

central twin porches but only the middle building seems to have had a round plaque positioned near the apex of its gable. This building was also distinctive and drew the eye by having a higher gable in comparison to its neighbours.

Past Settlement on Brownsea

What is known about the people of Maryland? The history of Brownsea reveals that the east end of the island rather than the west end, was the preferred location for settlement. The earliest known occupation evidence is a Romano-British site east of St Andrew's Bay (Jarvis 1992, 89–92) now destroyed by coastal erosion. A medieval cemetery dating from the 11th–14th centuries lay near a chapel (once a parish church?) in the vicinity of the farm buildings (Keen 1979, 140; Jarvis 1981, 134). The Tudor blockhouse remained in use until the 1660s and then various owners enlarged and converted it into a mansion house.

By 1774, the spit of land east of the castle included a wet and dry dock, a master of vessels house, a boat house and an officer's house (Hutchins 1774, 219). The commissioners of customs and the proprietor of a public house rented two small tenements on the island. The customs men, consisting of a master, boatswain and seven sailors were stationed on a hulk moored on a spit of sand known as Stony Island between Brownsea and South Haven. By 1842, this smuggling prevention force had been moved onto Brownsea, and cottages had been built to accommodate 11 men and their families. By 1851, 21 coastguards lived on the island but by 1861 the number had returned to 11. Their birth places show that

Table 1: Population of Maryland from census returns and other documentary sources

	1861 April Maryland Place	**1871 April Pottery Cottages**	**1881 April**	**1881 Aug. Maryland (Bennett)**	**1891 Potteries 16 cottages uninhab.**	**1901 Maryland Terrace**	**1910 (Chapman)**
1	Being built	Petts 2 **no. 18** (Shopkeeper) Neale 1 (Shop Assistant) World 1 (Servant)	Shop & Pub. Petts 2 (Lic, Victualler) Neale 1 (Shop Assisrant) World 1 (Servant)	Petts 2 2 servants (Island Inn and store) **no. 1**	Neale 1 (Publican & Grocer)		Fishers 1 & 2
2	as above	Hordle 1 **no. 18** Marsh 1 Green 1 (Pottery Labs 3)	Anstey 5 (Labourer) Froud (Carpenter) Pierce (Labourer)	Anstie 5 Froud **no. 2**	Honeywill 3 (Gamekeeper) (Gamekeeper Assistant)		
3	as above	Byles 3 **no. 18** (Pottery Lab.)	Byles 2 (Pottery Lab.) Whitty 2 (Coachman)	Byles 1 Whitty 3 **no. 3b**	Hill 4 (Blacksmith)		Northovers 3 & 4
4	as above	Byles 6 **no. 17** (Pottery Lab. 1) (Labourers 3)	Thomas 5 (Miner of Clay)	Thomas 5 **no. 3a**			
5	Uninhabited	Hatchard 7 **no. 16** (Blacksmith) (Pottery Lab.)	Whittingham 5 (Labourer) Lacy 1 (Pottery Lab.)	Whittenham 6 Lacy, Norris Gillingham Hoar **no. 4**	Whittingham 5 Kellaway (Labourers 2) Whayman (Carter)	Whittingham 4 (Garden Labourer) (Housemaid)	Broomfields 5
6	as above	Whittingham 8 (Pottery Labs 3) **no. 15**	Whittingham 4 Singleton Thomas (Labourers 3) (Errand Boy)	Whittenham 4 Singleton Thomas Dunford **no. 5**			Whittinghams 6
7	as above	Burgess 4 **no. 14** (Pottery Lab.)	Burgess 8 (Potter) (Cow Boy)	Burgess 8 **no. 6**	Dean 7 (Boatman) Froud (Labourer)	Dean 8 (Boatman)	Mackrells 7 & 8 (1 daughter)
8	Lovell 2 (Pipe Burner) Whiting 3 (Pipe Setter) (Potter 2)	Froud 4 **no. 13** (Carpenter) Fry 1 (Housekeeper)	Parker 4 (Engine Driver) Whittenham 2 (Potter) Froud (Servant)	Parler 5 **no. 7** Whittenham 2 Biggs 2 Welsh 2 **no. 8**			

	1861 April Maryland Place	1871 April Pottery Cottages	1881 April	1881 Aug. Maryland (Bennett)	1891 Potteries 16 cottages uninhab.	1901 Maryland Terrace	1910 (Chapman)
9	Marks 4 (Potter)	World 5 **no. 12** (Pottery Lab.) Parker 1 (Engine Driver) Toop 1 (Pottery Lab.)	World 3 (Labourer) (Servant) Dean 3 (Boatman)	World 2 **no. 9a** Dean 3 **no. 9b**			Phillips 9 & 10 (2 daughters)
10	Dyke 3 (Clay Cutter) Hammond 1 (Gardener)	Hounsell 2 **no. 11** Legg gs Bolt 1 (Brickmaker) (Pottery Lab.)	Teague 5 (Potter) Upwood (Clay Miner) Gould (Nurse)	Teague 5 Upwood Potter Jones **no. 10**			
11	Eyles 4 (Potter)	Old 6 **no. 10** Swyer 1 Palmer 1 (Pottery Labs 4) (Farm Labs 2)	Hordle 2 (Potter) Green 3 (Pottery Lab.)	Hordle 3 **no. 11a** Vincent 3 **no. 11b**			Toms 11 & 12 (11 children)
12	Whittingham 8 (Labourer 2)	Cheeseman 3 Crumpler gs **no. 9** Weeks 1 Dyke 1 (Clay Miner) (Pottery Labs 3)	Churchill 3 (Labourers 2)	Churchill 3 **no. 12b**			
13	Stockley 4 (Labourer)	Real 5 **no. 8** Parker 1 (late Coastguard) (Potters 2) (Pottery Lab.)	Real 2 (Labourer)	Real 2 Hooper **no. 12a**			Savilles 13 & 14
14	Masters 1 (Labourer) Dicke 1 (Labourer)	Eyles 5 **no. 7** (Pottery Lab.) (Potter)	Real 2 Brett Cheeseman Hibbs (Labourers 4)	Real 2 Britt Cheeseman Hibbs **no. 13**			
15	Burke 5 (Engineer)	Boyt 6 **no. 6** (Labourer)	Palmer 6 (Pipe Burner) Biggs (Labourer)	Palmer 6 Biggs **no. 14**			Swaffields 15 & 16
16	Horne 2 (Contractor's labourer)	Lovell 2 **no. 5** (Boatman)	Grey 3 (Outdoor foreman manager Clamp gs	Gray 3 **no. 15**			
17	Lodger (absent)	Lovell 2 **no. 4** (Pottery burner) Marks gd	Eyres 2 Kelly 2 Hawley 1 (Potters 2) (Clerk)	Eyles 2 Kelley 2 Temperlin Hawley **no. 16**			Norwoods 17 & 18
18	Cheeseman 4 (Labourers 2) Crumpler gs	Uninhabited **no. 3**	Byles 2 (Labourer)	Byles 2 (Infant School) **no. 17**			
19	Herden 1 (Labourer) Libbey 1 (Carter)	Kelly 2 **no. 2** (Potter)	Real 5 Lewis 1 Lesley 1 Biggs 1 (Labourers 3) (Gamekeeper)	Real 4 Leslie Jackson **no. 18**			Hydes 19 & 20 (2 daughters)
20	Whitton 3 (Stone Porter) Howard gs	Whitton 3 **no. 1** (Stoneware pott) Howerd gd	Tucker 8 (Bricklayer) (Dressmaker)	Tucker 9 **no. 19**			

they were mariners, recruited from coastal towns from Cornwall round to Norfolk. This was still the hub of the Brownsea community and boasted the island pub, the 'Branksea Arms'.

The Pottery Workers' Settlement

Meanwhile the Maryland population was growing. Skilled workers had been brought in from south-east England. Pipe setter Henry Whiting and his brothers, potters William and Charles, had come from Surrey, as had Charles Eyle, William Marks and William Whitton the stone potter. The Irish engineer Henry Burke had also moved to Maryland from the London area.

Richard Petts, the agent for the Brownsea Estate, came from Faversham in Kent and lived with his wife and servant in a pretty bungalow called Seymour Villa, situated 0.7km north-east of Maryland. It had been built in the 1840s and overlooked the north shore where the pottery railway ended. Here there was a pier and a series of brick-lined clay extraction shafts. From Seymours, the railway followed the coast around the north-west corner of the island. It passed in front of Maryland and continued along the shore linking the mess room, stable, Pottery Pier, the Little Pottery (where specialist products were made) and terminated at the Large Pottery at the south-west corner of the island.

The census returns are very useful in determining the details of Maryland's population but during each ten year interval, numbering systems and occupancy changed.

Therefore, one is never quite certain which tenement each census entry refers to. Table 1 gives the best fit of the data and it is interesting to follow changes of occupation including the subdivision of tenements indicated in the 1861–1881 census returns.

The development of the brick industry and the gradual increase in Maryland's population took place as Brownsea's east end population declined. By 1871, the fourteen coastguard cottages were empty but Maryland's population had risen from 50 in 1861, to 91. The last coastguard on the island was Cornishman Anthony Real, who moved his family to Maryland where his sons became potters. At the west end of the settlement, George Petts and his wife had opened a shop and employed a shop assistant, Mary Jane Neale, and a servant, Maria World. Maria was probably the daughter of pottery labourer James World who lived with his wife and two other daughters at 12 Maryland. James had two lodgers, including John Parker, an engine driver. Perhaps the railway trucks laden with clay were now drawn by a steam engine rather than donkeys but perhaps he looked after the documented clay kneading machinery in the Large Pottery.

George Petts is likely to have been the younger brother of Richard Petts, the agent for Brownsea, as they were both born in Faversham. By April 1881, George had expanded the business to include a public house to serve Maryland's population of 109. By August that year the number had increased to 117, when the vicar of Brownsea, Theophilus Bennett conducted his own survey of the Brownsea islanders (Bennett 1881). He recorded that Mr Byles at 17 Maryland had opened an infant school for the many children of the village. Numbers 3, 9, 11 and 12 Maryland had been divided, presumably into upper and lower floor accommodation and many families took lodgers. At 4 Maryland, Mr Whittingham his wife and four children also provided accommodation for four pottery labourers. This would be rather cramped by our standards in a two up, two down tenement. Jim Whittingham is described as a great and loveable character by Jack Battrick (see Battrick and Lawson 1978, 32). His father had stayed at his house in 1890.

> 'He was superbly white-bearded and had wise old shoulders and a bowed back which he supported by leaning on a willow cane. He was proud to announce with a resounding tap from his stick, that he was a recently retired pottery worker'.

Unfortunately, the pottery company did not make enough money and in 1883 George Cavendish Bentinck had to close the business. The 1887 map (Fig. 2) shows the settlement at its greatest extent with the various allotments and gardens behind the houses. There was a small group of three buildings west of the Bentinck Arms and beyond Maryland's railway platform lay Petts Pier, presumably named after the one-time proprietors of the pub and shop. Here, supplies were brought from the mainland by boat and unloaded. The foundations of the pier can still be seen on the beach as a double row of large diameter drain pipes embedded into the shingle. On the north-west side of the pub was a letter box (L.B.) and in front of the building was a square enclosure containing a flag staff (F.S).

A Community of Estate Workers

Without the industry, Maryland and her community became redundant and many families left Brownsea to find work. By 1891, only five tenements were occupied and the population of 22 had declined to 12 by 1901, with only the Dean and Whittingham families remaining there. Mary Jane Neale still ran the pub and shop in 1891 but there were not enough customers to keep the business solvent and it closed soon after this.

Mrs Petts died in 1883 and in the following year there was a court case. The executors of Frances Petts, 'former landlady' claimed that Mr Bentinck had not paid her £53 15s 11d. This was the cost of beer given to workmen employed on Brownsea Farm and Pumping House and ordered by the Brownsea Estate Manager, Mr Fry. The judge decided that there was no case against the defendant as Mr Fry had admitted ordering the beer on his own responsibility (Bugler and Drew 1995, 35).

In 1891, four days after the census was taken, George Augustus Cavendish Bentinck died. Major Kenneth Balfour MP purchased the island from his executors in the same year but it was not until Charles van Raalte's ownership of Brownsea, from 1901, that the fortunes of the island changed.

Charles and his wife Florence were at the centre of Edwardian society and from 1901 many important visitors came to Brownsea for parties, holidays and shooting weekends (Battrick 1978, 39–67). New families were needed on the island. This was a golden age. The van Raaltes employed servants in the castle, and on the wider estate, farm workers, game keepers, builders and boatmen. By 1910, Maryland had been repopulated and many of the tenements had been merged to create twelve dwellings. More than forty people were living there and this high level of occupancy continued until the 1920s.

The best information for Maryland at this time comes from the unpublished memoirs of Daisy Chapman (nee Toms) and her son Melvin Chapman (Chapman unpublished n.d.). Daisy was the fifth child of Fred Toms who in 1902 left the mainland for Brownsea to become a mason and gardener for Charles van Raalte. Their furniture was brought by barge and the family arrived on the island ferry *Blunderbuss*. Fred and his wife Alice were welcomed to the island with tea and cakes provided by Mrs Hyde. Her husband was the island's painter and decorator and they had recently moved to 19–20 Maryland. Mr and Mrs Toms and their eleven children settled in 11–12 Maryland beside the Phillips family who occupied the other two tenements in the central building of the village (Moore forthcoming).

Daisy described Maryland as 'one happy family' she wrote of the beauty of the place, the lawn in front of the buildings with a tree at its centre. 'There were pretty gardens at the front – ours had a beautiful scented yellow rambler rose climbing over the entire front of the house'. The back of the house faced south and was such a 'sun trap' that Mr Toms planted a peach tree there.

> 'Apart from the small gardens at the back of each house, with their brick built lavatories, we could climb a winding path to long spacious gardens where we grew vegetables and fruit bushes. There we dried the washing and had a chicken run and years after, a pig. There too we had plenty of grass where we could sit and play' (Chapman unpublished, n.d. 19).

Fred Toms also kept bees at the top of the garden. They produced large quantities of honey from the island heather and this was stored in a galvanised bath and jars were given out to everyone in the village. In the winter the bees were kept in an empty tenement. Alice Toms made mead from the honey. She also made elderberry and parsnip wine, and wood sage tea; a bitter drink used as a 'tonic for the blood'.

By the 1900s the east end of the island had regained its dominance. The Castle and the quay cottages were fully occupied by estate staff and this was where the island school was situated. The children of Maryland walked the 2km along the coach road to get there. Coal was the basic fuel and 200 tons at a time was brought by boat to the quay near the Castle and was then distributed in sacks to Maryland by horse and cart.

Daisy married Albert Chapman and their son Melvin was born on the island in 1915 but after Albert's naval service in the First World War they moved from the island. Melvin often returned to Brownsea to visit his grandparents during the 1920s. In *Brownsea Toms* he describes the interior of their home:

> 'It was the porches that made the houses so pretty ... and the door led straight into the front room. In my time Grandma always kept this as our best room and for special occasions, though it must have been well used even so for musical evenings. The piano stood against the inner wall; beside the fire, which was to the left as you went in, were two large cornucopia given to my Grandfather by Mrs Van Raalte, presumably when the island was sold.
>
> We had what at one time had been two houses. Downstairs this room and the kitchen or dining room and the skullery were the part which abutted the next door house. My friend Lew Luck and myself, when we visited during school holidays, were most interested in the other part, which was used as a woodshed and workshop. This part had no porch of its own but a door leading out to the side. Grandpa and Grandma had one of the bedrooms that faced Poole but ours faced into the island and lying in bed at night we boys (or perhaps it was my cousin Bobbie and I, when we were small) could see the tops of the trees on the hill and imagine that they formed dragons and all sorts of other things.
>
> There was always a good fire in the dining room (or kitchen we called it I believe), because we didn't use the parlour for eating in. The range was against the wall to our other back room, the wood shed. Grandma used to sit one side of the range and Grandad the other, and everyone else had to sit round the oblong table that was at right angles to it. There was a built in cupboard each end of the range and on the one on my Grandad's side was a wireless, a crystal set with earphones. We had to be quiet or Grandma couldn't hear. I shouldn't think that many people had them in those days. I suppose we did because of Mr Marconi, who sent the first radio message across the Atlantic from the Haven so they say, but more likely from his yacht which my mother and Gwen said they visited. Grandma could be a bit strict; had learned to be with all that tribe to keep in order, but kind with it. She was pretty well respected I think, being a sort of island midwife' (*ibid* 107–9).

The Bentinck Arms had been converted back into a house and was occupied by Mr and Mrs Fisher. They later moved to live near the Castle when Mr Fisher became the van Raaltes' butler.

Figure 6: Demolition of Maryland March 1964 (Dorset Wildlife Trust Brownsea Archive)

Charles van Raalte died in 1907 but Florence maintained the island community and lived for long periods on the island until 1918. After the war, she spent increasing amounts of time in London and left the management of the island to her son-in-law, Lord Howard de Walden. The family's interest waned and ownership of the island was always crucial for the islanders. It was sold in 1925 to a stockbroker, Sir Arthur Wheeler, who owned the Haven Hotel at Sandbanks. His plans to turn Brownsea Castle into a hotel and St Andrews Bay into a yacht marina were thwarted and so he decided first to sell the contents of the Castle and then the island (Moore 2003, 15).

In 1927, the new owner was Mrs Mary Bonham Christie and her desire was to have a sanctuary for nature not humans. The people had to go. Gradually the Maryland families were encouraged, then forced back to the mainland (*ibid*, 18). The Toms left in 1928, the Deans in 1929 but the Toms' next-door neighbours, the disabled Mr Phillips and his family, stayed on until 1934. Their furniture was then dumped on the beach ready to be taken by barge across to Poole. The St Johns Ambulance kindly took them and some of their belongings to the mainland. Unfortunately, the next day, a fire swept the island and destroyed their remaining possessions with part of Maryland (Battrick 1978, 116). The reason for the fire is unknown but there were many people with a grudge who were upset by the owner's attitude to the islanders.

For the next thirty years the village remained uninhabited and the plaster fell from the walls and the slates slipped from the roof. However, the reclusive Mrs Bonham Christie could not shield Brownsea from the Second World War. The strategic position of her island meant that a military reoccupation was necessary.

There may have been some re-occupation of Maryland at this time. The water postman, Harry Reeves, remembers that two cottages at Maryland were in use at the beginning of the war but no other details are known.

Coastal gun battery 347 was located at the east end of the island but it was the 'Starfish' bombing decoy at the west end that caused damage to Maryland (Moore 2003, 30). When the Luftwaffe came to bomb Poole, trenches filled with flammable materials were ignited, making the Maryland area look like a burning town (Bromby 2006). In May 1942, the decoy was successful and many German bombs landed on the island hitting Maryland and leaving craters in the surrounding area (Battrick 1978, 132). Many of these survive as earthworks amongst the trees.

Mrs Bonham Christie died in 1961 and the Treasury accepted the island from her heirs in lieu of death duties and transferred ownership to the National Trust in 1962. The Brownsea Islanders returned to their old home and Jack Battrick and Melvin Chapman have written about the jungle of neglect that they encountered.

> 'We landed at the bottom of the slope among the spongy mattress of rotted branches which surrounded the old village. The cottages had been bombed ruthlessly to complete what the great fire had left. There were the remains of a few of the twenty cottages. Their foundations were exposed in the great holes around them, their roofs sagged and hung at drunken angles. I did not even dare go near them' (Battrick 1978, 143).

Figure 7: Raising the walls with bricks before covering the site with terram and topsoil. Line of flagstones abutting the back south wall of 1 Maryland

In March 1964, soon after the National Trust opened the island to visitors, the navy was invited to make the village safe and the marines levelled the site using explosive. Woodland has gradually colonised the debris.

In 1979, Martin Hammond, an industrial archaeologist and specialist in the history of brick making, visited Brownsea and made plans of the ruins. For 1 Maryland he showed the location of the shop and pub bar and perhaps he had been told where these rooms once were by a past resident. However, he does not identify his source. His was the last recorded analysis of the place until the excavation in 2007 (Hammond and Haskett 1980)

When the footings of 1–4 Maryland had been uncovered, the archaeologists brought beer and cider and drank once again in the Bentinck Arms. Then the walls were built two courses higher using loose bricks excavated amongst the debris. A semi-permeable membrane of *terram* was spread over the walls and trailer-loads of topsoil were brought by tractor by the wardening staff. This was spread over the walls to create a grass-covered footprint of the building, to protect the remains against frost and erosion and still make part of the site of this once vibrant community visible to visitors (Fig. 7).

This brings the story of the island community of Maryland to a close. Named after a colonel's wife, a much loved home for eighty years, neglected for thirty and then demolished. Western Brownsea has returned to its quiet isolation.

Acknowledgements

Many thanks to the volunteer archaeologists who carried out the work and Nancy Grace and Faye Pendall who supervised them. Thanks also to Brownsea National Trust staff Richard Booth, Martin Piper, Val Whiteley and Angela Cott for their help and hospitality during the excavations. Particular thanks are due to Brownsea archivists Peter Moore and John Argent and Dorset Wildlife Trust's manager for Brownsea, Chris Thain, who supplied the documentary information for this report. Special thanks to Melvin Chapman for sharing his memories of his birthplace.

BIBLIOGRAPHY

Battrick, J. and Lawson G., 1978 *Brownsea Islander,. by Jack Battrick as told by Gail Lawson,* Poole Historical Trust.

Bennett, T., 1881, *A Sketch of Brownsea Island,* Poole.

Bromby, A., 2006 *Brownsea Island (Poole Harbour) Naval Night Bombing Decoy, 'Starfish' site PE1,* unpublished report.

Bugler, J. and Drew, G., 1995 *A History of Brownsea Island.*

Chapman, D. and Chapman, M., n.d. *Brownsea Toms*, unpublished manuscript.

Hutchins, J., 1774 *The History and Antiquities of the County of Dorset*, I, 1st edn.

Jarvis, K., 1981 'A medieval cemetery on Brownsea Island, *Proceedings of the Dorset Natural History and Archaeological Society,* **103,** 134.

Jarvis, K., 1987 'The chapel on Brownsea, a note', *Proceedings of the Dorset Natural History and Archaeological Society* **109**.

Jarvis, K., 1992 'An inter-tidal zone Romano-British site on Brownsea Island', *Proceedings of the Dorset Natural History and Archaeological Society* **114**, 89–95.

Keen, L., 1979 'Brownsea', *Proceedings of the Dorset Natural History and Archaeological Society* **101**, 140.

Moore, P., 2003 *For Nature not Humans, Mrs Bonham Christie and Brownsea Island*, Poole Historical Trust.

Moore, P., forthcoming, *A Winsome Place, Charles and Florence Van Raalte and Brownsea Island*

Papworth, M., 2005 'Brownsea Island, south shore: industrial archaeology interim report' *Proceedings of the Dorset Natural History and Archaeological Society* **127**, 145–47.

Van Raalte, C. and van Raalte, F., 1906 *Brownsea Island*, Arthur L. Humphreys, London.

Brownsea Archive

Hammond, M. and Haskett, L., 1980 Letter, survey and notes concerning Maryland and the brick industry. Poole Industrial Archaeological Group.

Marsh, A., 2002 Transcript and analysis of Census Returns 1841–1901.

Photographs of Maryland provided by the Saville and Toms families

Photographs of the demolition of Maryland 1964 held at the Villa headquarters of Dorset Wildlife Trust, Brownsea.

Dorset History Centre

1842 lease by Sir Charles Chad to Commissioners of her Majesty's Customs *DCH 263/T2*

1859 map and sales particulars compiled by the London and Eastern Banking Corporation Brownsea *DCH photocopy 167*

1887 map Ordnance Survey 25 inch to the mile 1st edition. Dorset Sheet L.4.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 139–147

A Meeting to Celebrate some Local Heroes of Dorset Geology

ROBERT CHANDLER* and DOREEN SMITH**
*Shirley High School, Croydon, Surrey, CR0 5EF (email aalenian@blueyonder.co.uk)
**13 Sheridan Close, Frampton, Dorchester, Dorset, DT2 9PL (heldon47@btinternet.com)

Summary

Accounts of the lives of three heroes of Dorset geology are presented: W.J. Arkell, P.C. Sylvester-Bradley and M.R. House. They are based on the 'local heroes' event celebrating the bicentenary of the Geological Society of London, organized by the Dorset local group of the Geologists' Association in July of 2007. Professor John Callomon provides personal recollections of W.J. Arkell in an appendix to the paper.

Introduction

The Geological Society of London is the world's oldest national society for earth scientists. It was founded on 13 November 1807 at a dinner at the Freemasons Tavern, Long Acre, Covent Garden, London. The minutes of that first meeting sum up its purpose: 'That there be forthwith instituted a Geological Society for the purpose of making geologists acquainted with each other, of stimulating their zeal, of inducing them to adopt one nomenclature, of facilitating the communications of new facts and of ascertaining what is known in their science and what remains to be discovered'. The Society has organised a variety of events to celebrate its bicentenary and invited various other societies to join in. It was therefore only fitting that Dorset; one of the classic areas of research and a testing ground for pioneers of British geology including William Smith should contribute to the celebrations. Between 28 and 29 July 2007 the Dorset group of the Geologists' Association organised an event centred on Sutton Poyntz pumping station near Weymouth to celebrate the lives and work of three 'Local Heroes', namely William Joscelyn Arkell, Peter Colley Sylvester-Bradley and Michael Robert House. A table of events is presented as Table 1.

The Geological Society of London generously sponsored the event and the excellent museum and facilities of the Sutton Poyntz water pumping station were made available by the generosity of Wessex Water and of John Willows, its curator.

The event was also the occasion for the presentation of a series of exhibits in the Victorian water works and its museum, one of which is shown as Figure 1. We were also fortunate to be able to welcome members of the

Figure 1: Adrian Brokenshire demonstrating the use of microscopes to study geological material at Sutton Poyntz during the meeting

Table 1: The events of the meeting

Location, date and title	Exhibit	Contributors
28 and 29 July 2007 at Sutton Poyntz pumping station and Museum	Displays on all three heroes (photos, published material books, articles, letters local, national and international, plus personal items including interests and family.	Mervyn Arkell, Felicity House and Michael Le Bas
	East Devon and Dorset World Heritage Site throughout the Pumping Station. Displays included old postcards, magic lantern slides, engravings and photographs from 1795 to the 1960s. The later photographs were from a collection of slides taken by Michael House.	Doreen Smith
	Guided tours of the waterworks machinery and museum	DGAG members: Bob Alderman, Gordon Corbridge, Charles Jackson (all engineers by profession)
	Microscopes with Michael House's thin section slides of the rocks of the Dorset coast plus photographs of them	Peter Bath
	Collections of Dorset fossils including vertebrate material.	Adrian Brokenshire, Ray Chapman, Robert Christian, Steve Etches, Alan Holiday, Martin Vine
	Dorset minerals	Ray Chapman, Doreen Smith
	Work on the Dorset coast from the 1940s, natural history of Dorset in relation to the geology, landslides along the World Heritage Site, safe harbours, shipwrecks, geological maps and explanations of the Sutton Poyntz area	Doreen Smith
Lectures	Dorset World Heritage Site	Alan Holiday, Chairman of the Dorset Geologists' Association Group
	Water sources and supply of the Weymouth area	John Willows, Pumping Station Museum Curator
Outdoor programme	Walks in the afternoon were 1) to the west and 2) east of Sutton Poyntz following Michael House's chapter in *Coast and Country* (2003)	Leaders: John Chaffey, Alan Holiday, Ray Chapman, Robert Christian, Sheila Alderman
Evening lectures on the heroes were held in the Springhead Pavilion followed by a dinner in the restaurant	Lecture on W.J. Arkell P.C. Sylvester-Bradley M.R. House	Professor Tony Hallam (Birmingham) Dr Michael Le Bas (Leicester) Dr Norman Butcher (Edinburgh)

heroes' families, including: Mervyn and Revera Arkell (son and daughter-in-law); Rosemary, Rowan and Ben (and his wife Jane) Sylvester-Bradley (daughter and sons); and Felicity House (widow) and Sue Wells (daughter). Michael's grandchildren attended the exhibition during the day. We (the authors) had the privilege of knowing only one of these geologists personally, namely M.R. House, but we have been granted permission to present the accounts given by the speakers on the day and of other accounts given by colleagues, friends and family of our Local Heroes.

William Joscelyn Arkell 1904–1958

Arkell is widely credited with reviving Jurassic geology following H.B. Woodward, whose catalogue of the Jurassic of Britain had been published by the Geological Survey (1892–95) in five volumes. Rather than simply rework two excellent accounts of the man by Cox (1958) and Callomon (2004), we have decided to call upon the memories and recollections of his friends and colleagues, in an attempt to include aspects of his life other than those previously published.

Figure 2: W.J. Arkell as young man (courtesy of M. and R. Arkell)

Arkell was born on 9 June 1904 at Highworth in Wiltshire, the youngest of seven children of James Arkell of Arkell's brewery at Swindon. He married Ruby Lillian Percival and the couple had three sons, one of whom, Mervyn, was present at our meeting and contributed to the discussions. From the earliest days Arkell showed a dedication to natural history, which included collecting fossils in the richly fossiliferous formations around Highworth. This interest continued while he was at Wellington College, Berkshire, and he took it with him to New College, Oxford, where he specialised in geology and palaeontology. He eventually became a Research Fellow in geology at New College (1933–40) and subsequently transferred to Trinity College and the Sedgwick Museum in Cambridge (1947–58). Although principally known for his geological contributions, Arkell was also an accomplished artist, specialising in the medium of pastels.

Arkell was certainly no armchair geologist! The 'hands-on' nature of his approach is illustrated here by two examples, the first from Hugh Prudden. 'It was about 1952. Arkell had come from Oxford to Cambridge at Trinity. I was a humble geographer at Fitzwilliam, but I had already developed a deep interest in the geology around Bedford, especially in the evidence of glaciation. I had obtained a copy of his *Geology of Oxford* and had the temerity to write to him asking if he would be interested in exceptional glacial deposits at Sundon, north of Luton. He replied that he would like to be taken and so we set off. On the way we called at a pit near Ampthill where glacial gravels contained an ammonite, which he immediately declared to be from the Kimmeridge Clay. On the way back he asked if I had any more such interesting exposures!'

E.B. Bailey was Director of the Geological Survey when Arkell was revising the Weymouth memoir. Professor Desmond Donovan recalls, 'Bailey and Arkell were in the field together when Arkell mentioned some problem about locating a geological boundary. Bailey disappeared at a rate of knots to borrow a pick and shovel from the nearest cottage. Arkell worked in the field with his 6 inch map, drawing in the lines as he went. He did not keep a notebook, but wrote up the relevant part of his forthcoming paper in the evening. His Dorset work was of course done before he was partly crippled by TB, and I can imagine it must have been exhilarating to be in the field with him. It was so even in the last years of his life. Latterly he had a house at Ringstead Bay, "Faraway", though whether he had it at the time of his main Dorset work I don't know.' [J.H. Callomon confirms that he did].

In honour of Arkell's contribution to geology, scientists from all over the world gathered at University College London in September 1993 to attend the *Arkell International Symposium on Jurassic Geology* sponsored by the Geological Society. The year was chosen to commemorate 60 years since the publication, at the age of 29, of his masterly survey of *The Jurassic System in Great Britain.* This work continues to be the first point of reference for anyone seeking a balanced introduction to the Jurassic in this country. As an adjunct to the Symposium, a field excursion was arranged to the Dorset coast to retrace Arkell's steps between 14–20 September 1993. A visit to his cottage at Ringstead Bay was included. (A field guide to this and other excursions arranged for the Symposium has been published by the Geological Society: P.D. Taylor (ed.), 1995. The Symposium was also the occasion for the presentation to the Geological Society of a portrait of Arkell. This now hangs in Burlington House.

In what turned out to be a rather short life, Arkell published more than 180 works, either as sole author or in collaboration with others. The sum of geological contributions by Arkell is in itself worthy of comment, but it is the volume of research that is truly staggering. His publications include a number of monumental tomes. These are written in a detail and style that most authors would envy. In *The Jurassic System in Great Britain* (1933) his introduction to 'Classification and chronology' stands even today as one of the clearest and most enlightening accounts of stratigraphical methods produced so far, especially in relation to geological time.

Figure 3: 'Faraway' the Arkell house at Ringsted. Visiting group of Jurassic researchers of the Arkell Symposium of Jurassic Geology, September 1993

Arkell had, formally, few students, but two of them remain specialists in the rocks of the Jurassic. One of them is Professor Tony Hallam of the University of Birmingham, who spoke at our meeting; the other is Dr Michael Howarth, formerly Deputy Keeper and researcher of Cephalopods in the Department of Palaeontology at the Natural History Museum, London. However, many others have acknowledged the guidance they received from Arkell as students and during their careers. They included Michael House, who was guided from the Jurassic into the Devonian on Arkell's advice; the Late Professor Jake Hancock of King's College London; and John Callomon (see appendix).

Peter Colley Sylvester-Bradley 1913–1978

Peter Sylvester-Bradley was a dynamic leader in both war and peace: in the Navy and as a professional geologist. The son of a Dorset family who lived at Langton Herring on the Fleet, he became a geologist of international renown.

Michael Le Bas joined the staff of Sylvester-Bradley's department at Leicester in 1961 and he has generously contributed what is written here. At the meeting, Michael began his account of our second hero by saying how pleased he was to have three out of four of Peter's children (and a wife of one of them) sitting in front of him, some of whom had crossed oceans to be present. He also noted how remarkable it was that Peter had the nickname 'Prof.' while he served in the Navy many years before he actually became a Professor – all because his fellow officers recognised his ability as a leader.

Peter Sylvester-Bradley fits the theme 'Local Heroes' of Dorset very well. His parents lived in the county at their family home at Manor House, Langton Herring, although he was born in Pinhoe, over the border in Devon, and his sister and sister-in-law still live in Dorset. World War Two and his geological career took him to many corners of the world, but Dorset always remained among his favourite places. He went to Reading University in the mid-1930s to read zoology but transferred to geology after hearing inspirational lectures by Professor H.L. Hawkins. He had intended to specialise in mineralogy and petrology, but, on discovering that he was colour-blind, decided palaeontology was the wiser path. His first research project, after graduating at Reading University, was on the Purbeck Beds of the Dorset coast, but his research was interrupted by pneumonia and then poliomyelitis. He had the knack of choosing projects that at first seemed of no major significance but which later proved to have just that: the Purbeck Beds are among the most significant sediments of the Jurassic/Cretaceous Periods, their palaeontology contributing to the first natural World Heritage Site in England.

Paul Ensom, who had been a student in the Leicester Geology Department, and held him in high regard, reminds us that Sylvester-Bradley made an attempt to

Figure 4: Peter Sylvester-Bradley at Noon's Close engrossed in his study of oysters shortly before his death

curate the geology collection of the Dorset County Museum in the middle part of the last century, and records of this project are in the Museum's archives.

Sylvester-Bradley was educated at Haileybury College, and during his studies of Zoology and Geology at Reading pursued interests in cross-country running, scouting, mountaineering and in the Reading Natural History Society. Research was further interrupted by the onset of World War Two. He joined the Navy and served on destroyers guarding convoys in the North Atlantic, then he was transferred to 'Secret Operations' and spent the last two years of the war as a Lieutenant in the Royal Naval Volunteer Reserve running high-speed launches between Corsica and the Italian coast for clandestine operations behind enemy lines.

On demobilisation, he married Joan, a geographer also at Reading University. He was appointed Lecturer in Geology at Sheffield University and there recommenced his study of Jurassic stratigraphy and ostracods. In 1955 he was invited to take the Rose Morgan Professorship at Kansas University for a year, to help edit Volume Q of the *Treatise on Invertebrate Palaeontology*, the Ostracoda (published in 1961). In 1957 he was awarded the E.J. Garwood Fund by the Geological Society, and two years later was appointed the first F.W. Bennett Professor of Geology in the University of Leicester. The lack of a PhD did not bother him. He was 'Prof.'.

He invested his infectious enthusiasm in upgrading the small hut-bound Leicester Geology Department into a major research establishment with a grand new purpose-built building. He appointed new members of staff who would partner him in designing the building, equipping it with the latest research instruments and, most importantly, creating teaching courses that attracted large numbers of students. His leadership qualities came to the fore and his advice was constantly sought. Research students arrived, and field courses to Europe and to the USA for undergraduates were introduced.

Acquiring one of the newly invented scanning electron microscopes, he began a major research programme to produce images of ostracods, crustaceans that are largely, too small for normal photographic imagery, His evangelic promotion of stereophotography culminated in the publication of the *Stereo-Atlas of Ostracod Shells* that ran to many volumes. The latest ideas of sea-floor spreading were introduced in first-year lectures, and, knowing the importance of publication, he wrote engaging papers on the origin and evolution of life, fossil sex (a number-one topic for lectures he delivered to students all over the world), taxonomy, stratigraphic nomenclature, the Tethys Ocean (casting back to his experiences in Corsica), and he wrote contributions to many books. His enthusiasm was contagious, and the whole department hummed with activity; and it scored highly in both teaching and research reviews.

Tragedy struck in the year of his retirement. He took the student Easter field course for 1978 to the Mendips; but an unexpected stroke put him in hospital in Bristol and he died ten days later. He was at his zenith. For his retirement, due to begin that summer, he had a research professorship awaiting him at the Open University, and there were plans for other research programmes.

Go anywhere in the world and you will find men and women who have advanced the frontiers of geology and will say that they owe it to PCS-B. One needs look no further than the current (2007) nominations to be the next president-elect of the Geological Society.

In memory of his contribution to geology, a commemorative edition of the *Proceedings of the Geologists' Association* was published in 1980 and the Palaeontological Association inaugurated the Sylvester-Bradley Award after his death.

Michael Robert House
1930–2002

Last, but by no means least, we come to the contribution of Michael House. We knew Michael personally as a sound advisor and friend. He was a steadfast and highly respected member of the local branch of the Dorset Geologists' Association of which both of us are active members. One of us (RBC) has personal recollection of the rigour and diligence with which Michael in his role of geology editor of the *Dorset Proceedings* edited papers submitted for publication. This often generated a fruitful correspondence in which his criticism invariably added value to the resulting publication. Michael was also a founding member of the 'Geogeriatrics', a

Figure 5: M. House in his crisp, clean fieldwork attire. (Courtesy of Mrs F. House)

select group of the like-minded that still gathers regularly to walk and study geologically interesting sites in Dorset. All who remember Michael will recall his unassuming 'one of the group' attitude during these events. It also astonishes how he managed to maintain a crisp fresh look in his cream jacket on field trips despite all the visits involving wet clay!

With the sad news of Michael's death aged 71 at Weymouth on 6 August 2002, it was only fitting that a book, *Coast and Country geology walks in Dorset*, to which he was a contributor, should be dedicated to him by his friends of the Dorset GA. What follows is extracted from accounts supplied by his family, many friends and colleagues.

Peter McCabe remarked that his memories of Michael were revived by the diary entries of Roger Hewitt, a student of Michaels at Hull, which included one on a lecture by Michael as 'enjoyable and relaxing'.

Michael was born in Blandford Forum and came from a modest background, being born the middle son of a Portland dockyard master plumber in 1930. He relished the challenges of National Service in the Education Corps before moving on to undergraduate studies at Cambridge. He had considerable support from W.J. Arkell who directed his interests towards Devonian ammonoids rather than Jurassic ammonites. He was also strongly influenced by another Dorset man, in fact another local hero, Kingsley Dunham, then at Durham University (and later to become the Director of the Geological Survey), where Michael was appointed to his first teaching post. At Durham, he established a reputation as an inspiring teacher. Michael having departed from his Dorset Jurassic roots, to which he returned in the last years of his life, began relentlessly to seek out marine Devonian rocks and their ammonoid faunas, across the face of the Earth. In so doing, he built a formidable reputation as one of the foremost stratigraphical palaeontologists of his generation. Then in 1963, the opportunity arose for him to move to Oxford to a Lectureship in Palaeontology. Later that year Michael became Dean of St Peter's College, Oxford; this provided the springboard for him to secure the Chair at Hull University (1967). Although small, a department of geology had existed at Hull for some time and Michael proved to be an excellent Head. He expanded the Department's activity into areas such as industrial mineralogy. He served as Dean of Science in 1976–78, and as one of two Pro-Vice-Chancellors in 1980–83.

Michael's study of ammonoids caused him to travel widely. He had spent 1958–1959 as a Harkness (Commonwealth Fund) Fellow at Harvard and Cornell. The following anecdote from this time is typical of Michael. While doing fieldwork in the Appalachians, he had failed to persuade a landowner to give him access to an old locality, famous for its fossils. So he calculated where there would be another exposure of the same rock; this turned out to be even more productive! Working on these and some other collections, in this one year alone he doubled the number of genera of Devonian ammonoids known in the Americas. He later extended his work to areas in France, Morocco and the Canning Basin in Western Australia.

Michael was very meticulous: he prepared fully for meetings by reading the agenda and all papers beforehand and making notes; kept small photographs of all his students at Hull University from 1967 in a notebook for future reference; and he always planned fully for field-trips beforehand by obtaining permission from landowners for access to their land. Regarded by his colleagues as an excellent draughtsman, all Michael's maps and illustrations were precisely to scale.

Being gregarious, Michael was very sociable, especially with fellow geologists at national and international gatherings. He really enjoyed both 'talking shop' and taking part in discussions; he did not relish meetings where only 'small talk' was possible.

Among his hobbies Michael taught himself bookbinding and derived much satisfaction from binding some of his own books in different ways. He also collected Leica cameras dating from the 1930s whenever he

could afford to do so. His large collection of cameras and accessories was acquired from the camera fairs held around this country and abroad, which he visited when he could fit them into his schedule of conferences and field-trips. This collection was sold just before he died. Michael loved to attend performances of opera, and he became very knowledgeable on the subject. He spent time in his retirement on reading the biographies of the composers and studying their music. He played the piano [self-taught] at home, especially accompanying his children when they were learning to play various instruments: they all had great fun playing together. Furthermore, he had working knowledge of several languages, and tried to expand his vocabulary in evening classes in later years.

As a family man Michael gained much joy and satisfaction from being a father, helping to develop the personalities of his two children, by encouraging them to pursue their own interests. As part of this he attended football matches, coin auctions and cactus groups, and aided his son in the collection of cigarette packets by asking colleagues to acquire what they could from abroad! Although disappointed that neither his son nor his daughter decided to become a geologists, he took great interest and pride in their careers. Family holidays were always very important to him, and he really relaxed and unwound during cottage holidays in Scotland and in his beloved Dorset. He would always have his sketch-pad with him to make pen and ink drawings of the area, although he thought that the family were not very patient towards his hobby!

The closure of the Hull Geology Department in 1988 under the Thatcher Government was a great disappointment to him, but he adjusted to life in a new home at Southampton University as well as he could. He chose Southampton because of its proximity to Dorset where his father, in his nineties, was still living. He officially retired to Weymouth in 1995 (but continued part time until 1997), where he had spent most of his childhood and he was much in demand locally to give lectures and to run field-trips. The last two and a half years of his life were made especially enjoyable for him through being, allowed, to accompany four local amateur geologists on their weekly field excursions along the Dorset coast from Lyme Regis to Hengistbury Head. By this time Michael's book *The Geology of the Dorset Coast* (1989) was in need of updating, so in the company of these four remarkably different professional men he had a very happy, hilarious and also productive time doing this. After his death in 2002 there were over two hundred tributes to Michael from colleagues, former students and many friends across the world.

Acknowledgements

On behalf of the speakers at the meeting and ourselves, we wish to acknowledge the contribution of the following for the information they have generously made available, thus allowing us to compile this account: Mervyn and Revera Arkell, Norman Butcher, John Callomon, Robert Christian, Rex Crick, Desmond Donovan, Paul Ensom, Tony Hallam, Roger Hewitt, Alan Holiday, Felicity House, Michael Le Bas, Peter J. McCabe, Hugh Prudden, David Siveter, Rosemary, Rowan and Ben Sylvester-Bradley, Sue Wells, John Willows. Dr Roy Clements and Paul Ensom are thanked for their critical comments on earlier versions of the manuscript.

Appendix

William Joscelyn Arkell: some reminiscences

John H. Callomon

I first became aware of Arkell in 1947 after I moved to Oxford in 1946 as a student of chemistry. My subsidiary interest in geology had been aroused some years before by an old family friend, Horace Sanders, who had inducted me on long bicycle tours into the classical Palaeozoic shires of the Welsh border country or to the Cambrian inliers of Nuneaton. The trophies consisted largely of trilobites, of Titterstone Clee *Sigillaria* or of crystals of Stiperstone barytes. I had, however, become acquainted with the potential attractions of younger strata through a visit from where I had been farming during the summer holidays on the slopes of the Malverns to the old brick-pits in the Lias of Battledown in Cheltenham. So, installed now in a strange province surrounded almost exclusively by formations with names such as Great Oolite, Oxford Clay or Corallian Beds, back unto the saddle and into ventures new. But where to go, what to see?

Salvation came through the first of one of those lucky events marking a fortunate coincidence of time and place: the publication in 1947 of Arkell's *Geology of Oxford*. It told you where to go, what to see, what you could find there and what it meant, with a clarity and elegance that one recognised later as so characteristic of everything that its author wrote. But it was also scholarly and rigorous, with no concessions to the novice. If you wanted to understand more you had to find out for yourself, by following up the references and footnotes.

By more good fortune, all the literature to which they referred was still available through open-shelf access in the Radcliffe Science Library, to which one was doomed as a student to spend many long and tedious hours in the evenings anyway. Most interesting of course were all those fossils, for in those days, when quarries were still in work, and the roads were free of cars, and as in all recollections of one's youth the sun shone all the time (and the distractions of sedimentology had not yet been invented), it was still possible to collect them anew. And, of course, leading among them were the ammonites, so prominent in the *Geology of Oxford*. But in trying to identify fossils, books are bewildering: better to see real examples in the round.

So the third stroke of luck: the exhibits in the nearby University Museum, arranged in stratigraphical sequence. Frequent visits and long pauses at the showcases led inevitably to a meeting with the then curator of the geological collections, James Edmonds, which grew into a life-long friendship. The exhibits had inevitable emphasis on local material. That included an impressive display of a set of superlative ammonites of a genus called *Perisphinctes* from those Corallian Beds. They formed apparently also the basis of a monographic description then in progress by the same W.J. Arkell, and a challenge in trying to identify some nice new finds. But not all of this set was from near Oxford. There were equally fine ones from Dorset labelled Ringstead and Osmington: mental note.

The last step: had I ever met Arkell, James Edmonds asked me? He was in that day, he said, and there he was, coming towards us in the gallery. And so we met. He was in a hurry and could not stop, clearing up shortly before leaving Oxford for the Sedgwick Museum in Cambridge. But would I like to have tea with him at his home in Cumnor one day next week? I do not recall much of the occasion except that on taking my leave he presented me with a packet of reprints of his publications. One of these was his description of the ammonites of Woodham. There was no turning back.

In the following years much new material came to light. Some of it seemed to extend what was described in the *Geology of Oxford* or the *Ammonites of the Corallian Beds* and occasionally it seemed even to call some of the identifications into question. So I wrote to Cambridge with reports of my new discoveries and many queries on things I did not understand. There came replies invariably within a few days dealing in full with all the points I had raised and expressing genuine interest in what was new, with comments on its wider implications. Later, for travels abroad, I was given introductions to people that led to some interesting meetings. These included Hans Stille, at the Humboldt in Berlin, shortly before his escape to the West; Professor Jeannet, at the ETH in Zürich, author recently of a major monograph on the ammonites from the Callovian in the iron-mines at Herznach, Kt Aargau; Helmuth Hölder in Tübingen, the home of the great Quenstedt; and Hans Frebold, by then at the Geological Survey of Canada in Ottawa. Thus I had the privilege of what amounted to a course of private tutorial supervision over five years and have been proud to consider myself a student of Arkell's ever since, even though never encapsulated in the whole rigmarole of formal admission, registration (and fees) that so besets students today.

For me the discovery of Dorset as the historical seat of our knowledge of the British Jurassic came only slowly and from books. My first visit to see its geology at first hand did not come until 1951, by motorcycle, and in the few days that were all one could as a student spare and afford, the impression was more of what one did not know than of what one had learned. The guide then was another definitive text, by Arkell, the now timeless *Weymouth Memoir*, but I did not then meet Arkell on his home ground as he was away. There was a subsequent visit with friends staying in a small disused chapel –

now totally vanished through coastal erosion – on the foreshore just east of the road leading down to the line of holiday homes at Ringstead, which includes the Arkells' 'Faraway', but there was only a brief encounter with Joscelyn to say hello.

My first proper visit was in 1955 on my return from a spell in Ottawa, when he invited me to stay with him for some days at Ringstead. They were enjoyable. We toured around a bit, visiting as I recall O.T. Jones living in retirement at Upwey and some other friends, but quite some time was spent proof-reading chapters for the *Jurassic Geology of the World*. The conversation ranged widely. He alluded to some of the antagonisms between prominent members of the senior geological Establishment, leading to conflicts in some of which he had himself become involved (as had O.T. Jones), but was most careful not to take sides: let the facts speak for themselves. I had to disillusion him of an impression he had had of Hans Frebold, whom he had never met but with whom he had corresponded in connection with what he needed to know about the Jurassic of the Soviet Union. He had read important articles originally written in Russian that had been published in German translation, apparently by Frebold while he was in exile in Denmark in the 1930s. So he assumed that Frebold was fluent in Russian. Not so, I learned in Ottawa: he had got to know some high-ranking ex-White Russian Army officers also exiled in Copenhagen happy to find some employment and it was they who had done the translating. He, Frebold, knew no Russian. Facts were facts: one day one of the new-fangled four-engined turbojet propeller-driven aircraft flew over and I ventured an identification as a Vickers Viscount. This he disputed, but we left it at that. Two days after I had returned home there came a postcard from Ringstead, brief and to the point. Yes, he had checked, and it had been a Viscount. It was fully in character.

That was also my last encounter with Arkell in Dorset. Living and working now in London as a junior academic, journeys to far-away places like Dorset were major undertakings. We kept in touch by correspondence and I was able to congratulate him on the publication of what by now I had learned to appreciate as his two greatest works, the Jurassic ammonite volume of the *Treatise on Invertebrate Paleontology* (1957) and, of course, the *Jurassic Geology of the World* (1956). But the last time we met was under altogether sadder circumstances, in a nursing-home in Cambridge, some months before a second stroke that ended his life at the early age of only 58. One reflects on the tragedy that bereft him of the chance to enjoy the acclaim that met those two last great publications and one wonders what else he might have gone on to do, what further he might have achieved, had he lived. Although born and brought up in Wiltshire, South Dorset had been his spiritual home and he loved it as he loved no other of the places in which he had lived. He was without doubt one of the founding fathers of the 'Jurassic Coast'.

Accounts of the geology of Dorset like the *Weymouth Memoir* if written today would look rather different. A second edition of Arkell's *Jurassic System in Great Britain* (1933) written today would on any account also look rather different, and who would be qualified to write it?

BIBLIOGRAPHY

Arkell, W.J., 1933 *The Jurassic System in Great Britain*. Oxford University Press, 681 pp.

Arkell, W.J., 1935–48 *A Monograph of the Ammonites of the English Corallian Beds*. Palaeontographical Society, London, 420 pp., 84 pls.

Arkell, W.J., 1947 *The Geology of Oxford*. Oxford University Press, 267 pp.

Arkell, W.J., 1947 *The Geology of the Country around Weymouth, Swanage and Lulworth*. Memoirs of the Geological Survey of Great Britain. HMSO, London, xiii + 386 pp. (completed in 1939, reprinted with Addenda and Corrigenda, p. xiv, xv, 1953; *id.*, pp. xvi–xxvii, 1976)

Arkell, W.J., 1956 *Jurassic Geology of the World*. Oliver and Boyd, Edinburgh, 806 pp., 46 pls.

Arkell, W.J., 1957 Mollusca 4, Cephalopoda, Ammonoidea: various parts, particularly Mesozoic Ammonoidea (with B. Kummel and C.W. Wright), in R.C. Moore (ed.), *Treatise on Invertebrate Paleontology*, Part L, Geological Society of America and University of Kansas Press, xxii + 490 pp.

Callomon, J.H., 2004 'Arkell, William Joscelyn (1904–1958)', rev. J.H. Callomon, *Oxford Dictionary of National Biography*, Oxford University Press.

Cox, L.R., 1958 William Joscelyn Arkell 1904–1958 *Biographical Memoirs of Fellows of the Royal Society* **4**, 1–14.

House, M.R., 1989 *Geology of the Dorset Coast*. Geologists' Association Guide. 162 pp.

Proceedings of the Geologists' Association, 1980 Volume **91**, parts 1–2.

Taylor, P.D. (ed.), 1995 *Field Geology of the British Jurassic*. Geological Society of London, 286 pp.

Sylvester-Bradley, P.C. and Siveter, D.J., 1973–1993 *A stereo-atlas of Ostracod shells*. Vols 1–25. University of Leicester, Dept of Geology, Leicester.

Woodward, H.B., 1892–95. *The Jurassic Rocks of Great Britain*. Vols 1, 2, 1892, by C. Fox-Strangways, Vols 3–5, by H.B. Woodward, 1893–95. Memoirs of the Geological Survey of Great Britain. HMSO, London.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 149–162

Geomorphology of Dorset: A Review

VINCENT MAY
Bournemouth University, Talbot Campus, Fern Barrow, Poole, BH12 5BB
Email: vmay@bournemouth.ac.uk

Dorset's landscapes owe their underlying form to geomorphological processes which have moulded the county's geological foundations over very long time scales. In recent millennia, however, the people of Dorset have gradually modified the landscape and increasingly, especially during the past three centuries, become important agents in the geomorphological processes. They have also taken a greater and greater interest in those processes and forms. So it is not surprising that, in recognising the coast as a natural World Heritage Site, UNESCO (2007) records that the coast's fossil sites and classic geomorphological features have contributed to the earth sciences for over 300 years. This review summarises geomorphological studies during the 19th and early 20th centuries, reviews research in recent decades, and discusses some of the recent advances in our understanding of the landscapes not only in the administrative county of Dorset but also offshore.

The Geological Conservation Review (GCR: Ellis *et al.* 1996) recognises the importance not only of Dorset's coastal geomorphological and mass movement sites (Cooper 2007; May and Hansom 2003), but also Quaternary (Campbell *et al.* 1997; Whiteman and Haggart In press) and, perhaps unexpectedly, karst sites (Waltham *et al.* 1997). The importance of the coastal sites, in particular, is also reflected in Lulworth Cove, Chesil Beach, Studland and Old Harry being among the fieldwork locations most studied by school and university students anywhere. There are, however, less studied parts of the coast, especially in the eastern part of the county, where geological GCR cliff sites reveal former geomorphological features produced by changing climate and sea-level. Even less attention has been given to the inland geomorphology. In contrast, Dorset's submarine geomorphological features have attracted more attention in recent years. Dorset's landforms have been studied at different spatial and temporal scales, from the Tertiary to a few months and even daily in the case of beaches (Fig. 1), and from the morphological feature to much larger areas such as Poole and Christchurch Bays. Shoreline Management Plans, coast protection and landslide management have focused on the narrow coastal strip in contrast to much more extensive oil and gas exploration surveys of the sea bed. There is, not surprisingly, a considerable accumulation of geomorphological information in these reports.

Geomorphological Enquiry in Dorset

Investigations of Dorset's geomorphology fall broadly into six groups. First is the long history of landscape evolution that produced land surfaces planed across the geological structures. From the 19th-century debate about the origins of the valleys of west Dorset (Buckland 1824) through the work of Wooldridge and Linton (1955) to the more recent studies of Jones (1999) and Gibbard and Lewin (2003), there is a continuing fascination with the ways in which the past and present patterns of rivers, slopes, escarpments and terraces have developed. These patterns have changed little during the human occupation of Dorset's landscapes. Second, archaeological investigations of sites consistently, but increasingly, attempt to establish the nature of the landscape at different times of human occupation. A common aspect of site interpretation is the extent to which sub-surface features are 'natural' or originate wholly or partially from human actions. Third, there have been few studies of the fluvial geomorphology, recent work concentrating on the links between channel form and riverine ecology. Fourth, investigation of the active coastal processes, including landslides and beaches, is by far the most extensive. Whereas the evolution of most of Dorset's landscape has been slow, at the coast it is often rapid. Communities built upon landslides, threatened by floods or lost to the sea by coastal erosion have stimulated detailed and innovative research into these active processes. In particular, landslide research in West Dorset has contributed to worldwide understanding and management of landslides. Although the inland landscape is affected by landslides, there have been few detailed investigations apart from close to the coast. Fifth, within the estuaries and lagoons, surveys of their changing form have been prompted by the needs of port management, alongside multi-disciplinary investigation of estuarine ecology (Humphreys and May 2006). In particular, the late 19th-century spread of *Spartina anglica* in Poole Harbour led to a continuing programme of studies of the dynamics of the salt marshes. As *S. anglica* colonised the harbours, it changed their shape, captured the estuarine landscape of the late 19th century and gave rise to new intertidal landforms. Finally, sixth, the availability of remote-sensed data and the development of modelling techniques allowed previously inaccessible areas to be investigated, very detailed mapping of terrestrial areas (especially landslides) and the development of process models notably in under-investigated areas such as hard-rock cliffs.

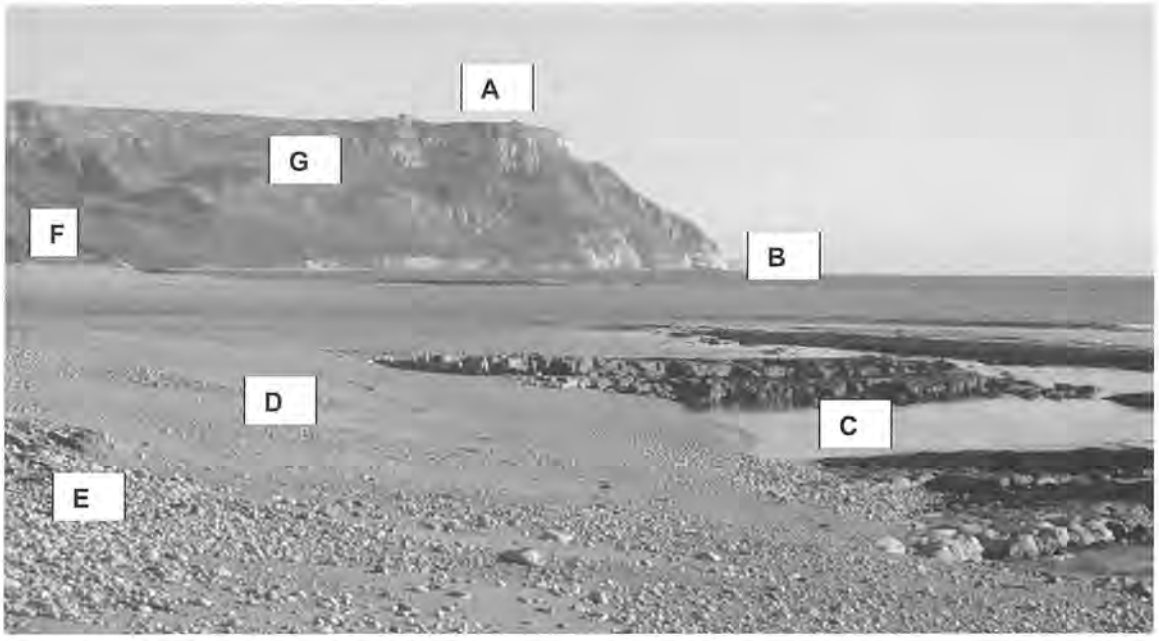


Figure 1: Ringstead beach and White Nothe. A landscape shaped by processes from the Palaeogene to the present. In the background, the headland is planed (A) across the seaward dipping strata which can be seen outcropping at the base of the headland (B). In the right foreground, eastward dipping strata form micro-cuestas eroded to a similar concordant summit altitude (C), a modern equivalent perhaps of the landforms atop White Nothe. The beach is sorted into a mainly sand lower beach (D) and gravel in the upper beach (E) with some mixing in the foreground. The landslide has active mudslides (F) and rotational slides (G) which are probably of some antiquity (May 2003e)

The submarine landscape has also become a focus of widespread investigation, both immediately offshore and in the wider English Channel. Although the seabed was mapped from the 16th century onwards (May 2004a), studies of the underwater landscape remained rare until the availability of sonar allowed detailed recording of the submarine forms and of their changes. It is now possible to describe the sub-aerial and submarine landscapes together, and to reinforce the interpretation of Dorset's landscape development during the Quaternary, a theme which links the different approaches outlined above.

During the 19th and early 20th centuries, most geomorphological studies were carried out by geologists who focused on the longer term evolution of the landscape, typically regarding the hilltop surfaces as the result of marine planation (e.g. Jukes-Brown 1895; 1898; Bury 1933; 1936). This point of view shifted to the role of rivers in the planation process following the publication of W.M. Davis's (1895) paper on English rivers. There was, and remains, a tendency towards investigation of distinct events, especially landslides (e.g. Arkell 1954) and storms (e.g. Arkell 1955). Landslides were a key focus of interest, especially at Lyme Regis, but also on the Isle of Portland and at Burning Cliff, Ringstead, and raised beaches attracted some attention (e.g. Prestwich 1875; 1892). Geomorphological studies were typically published in the journals of the local natural history and science societies, and in the Memoirs of the Geological Survey. From the 1940s to the mid-1960s, most studies focused on the rivers and their terraces, with 25 papers listed by Clayton (1964) including Everard's (1954) paper on the Solent River and a number of more localised studies of the terraces of the Rivers Avon and Stour and the Bournemouth area (Bury, 1920; Calkin and Green 1949; Green 1943; 1945; 1946; 1947; 1949; Sealy 1955). West Dorset had occasional mentions (e.g. Lang 1962) although the Weymouth area attracted rather more attention (e.g. Arkell 1947; 1951; 1955; Sparks 1951; 1953; Doornkamp 1964; Mottram 1956).

Inland Geomorphology

Whereas many of these papers described the intimate links between geology and landform, they also raised questions about the discordance of rivers and features which did not easily fit the marine planation paradigm. Wooldridge and Linton's (1955) region-wide classic study drew on many of these local-scale studies and proposed a subsequently much criticised explanation for the patterns of discordant drainage and land surfaces that cut across the regional geological structures. Later studies paid less attention to Dorset, but developed different ideas about the origins of landforms in south and south-east England that have implications for interpretation of the Dorset landscape. Jones (1999) examined the evidence that supports replacement of Wooldridge and Linton's 'superimposition' model by an emphasis on the development of anteconsequents. Arguing that better understanding of the tectonic processes combined with modern techniques dating episodes of uplift using apatite fission-track dating and lithostratigraphical division of the Chalk allow a new

evolutionary sequence to be produced, he identifies three key reasons for different interpretations. First, the Wooldridge and Linton model was based upon an assumption of uniform evolution of the landforms, which depended upon mid-Tertiary tectonism producing a landscape where the drainage patterns and land surfaces became established. However, since the 1980s the recognition of morphotectonic regions means that uplift could have been variable in time and space (e.g. Westaway *et al.* 2006). Second, Jones suggests that evidence of Pleistocene differential uplift of at least 200m needs to be taken into account. In Dorset, in the Frome valley and along the eastern boundary in the Avon valley, river terraces have been used to show how much uplift probably occurred during the Pleistocene (Maddy *et al.* 2000). Third, modified etchplanation can account for the so-called Plio–Pliocene marine bench. The term 'etchplain' (Wayland 1934) describes a process in which deep weathering during a period of tectonic stability is followed by intense tectonic uplift and removal of the deep weathered rock. With spatially differential tectonism, complex planation surfaces which do not necessarily reflect regional uniformity of process become possible. Although the Dorset landscape has not been reinterpreted in the light of Jones' discussion, current descriptions of sites, for example the Regionally Important Geomorphological Site (RIGS) at Corfe Castle, may need to be reviewed. Allen and Gibbard (1993) described the Pleistocene evolution of the Solent River and Gibbard and Lewin (2003) focused upon the evolution of the Tertiary river systems of southern England. Combined with Plint's (1983) description of the sediments exposed in the Bournemouth cliffs, it becomes possible to observe the cross-section of sediments and structures in a major delta and visualise its development over much of south-east Dorset.

Although at a more local scale, the morphological evolution and geo-chronological history of the Axe valley have been greatly enhanced by excavations in the Broom Pit on the Dorset–Devon border. Fine-grained fluvial sediments comprising silts and fine to medium sands were deposited between 270,000 and 250,000 years BP in a low-energy environment, perhaps on a floodplain or in a meander cut-off (Hosfield and Chambers 2003; 2005). The deposits occur at least 2m below the modern river level, raising wider questions about the depth and location of any younger terrace landforms and associated deposits, the nature of fluvial response in the River Axe valley during the late Middle and Late Pleistocene, and the possible impact of local and regional isostatic processes on the fluvial landscapes of south-western Britain (Hosfield and Chambers 2003). The Broom sequence suggests a pattern of short phases of rapid fluvial erosion and sedimentation during phases of climatic transition and oscillation separated by longer periods of predominantly quiescent fluvial systems (Hosfield and Chambers 2005).

The northern parts of the county, the Vale of Marshwood and much of the chalk downland described by Jukes-Brown (1895; 1898), have received very little attention from geomorphologists, but their geomorphological characteristics have attracted the attention of archaeologists. The presence of sarsens, notably at the Valley of the Stones, attracted some geomorphological and archaeological interest (e.g. Summerfield and Goudie 1980). Archaeological work on the chalklands, especially Cranborne Chase, has found that some features associated with occupation sites are, in fact, solution forms. Infilled dolines on occasion provide detailed information about the archaeoecology of the landscape. Rimsmoor is one of several large dolines in central Dorset, but unlike others described in the literature (Sperling *et al.* 1977; House 1991) has provided detailed biostratigraphic information (Waton and Barber 1987). A number of projects, including the Wyke Down Project and River Allen catchment study (French *et al.* 2003; 2005), have thrown additional light on the links between the archaeology and the palaeoenvironment of Cranborne Chase. Signatures of land-use practices have been revealed by investigations of soils underneath monuments and within barrows and so enable these activities to be placed in their landscape context. Patterns of erosion and soil change which are often associated with intensification of agricultural land use and settlement appear at earlier dates than previously described (i.e. pre-barrow construction during the Neolithic–earlier Bronze Age or earlier). Although this contradicts the present model for the region and has major implications for the interpretation of land-use practices in the Neolithic and Bronze Age, it does not imply large-scale modification of the predominant patterns of the geomorphological landscape.

Since the widespread interest in valley forms in the mid-20th century, there has been little investigation of fluvial morphology. However, evidence of fluvial processes links geomorphological aspects of archaeological sites and landscapes, as the Broom Pit, Wyke Down and the River Allen projects show. In contrast, recent ecological studies within the fluvial setting have focused on the scale of individual species, where there can be significant variability in flow patterns and sediment distribution (Gurnell *et al.* 2006). Inter-disciplinary study of two river reaches in the River Frome catchment, for example, demonstrated on the basis of monthly measurements throughout 2003 how different growth forms of *Ranunculus*, a submerged macrophyte, created distinctive patterns of flow and fine sediment deposition (Cotton *et al.* 2006).

Coastal Geomorphology

The coast has been the principal location of geomorphological research, with many site-specific studies. For example, textbooks worldwide (e.g. Bird 1968) use the Lulworth area as an example of longitudinal coastal development and the effects of differential erosion. The

dunes at Studland are regularly cited as an example of the relationship between coastal accretion and dune plant succession and of the ergodic principle in which spatial patterns represent temporal sequences. Chesil Beach has continued to be a focal point for beach studies, not least because its origins and behaviour remain uncertain. The landslides of West Dorset, however, have been the most consistently and deeply investigated. As a result, the West Dorset coast is an international focus for landslide geomorphology, demonstrated in a long series of papers by Brunsden and others (Allison 1990; 1992; 1999; Arber 1941; Arkell 1951; Brunsden 1990; 1993, 1996; 1999; Brunsden and Chandler 1996; Brunsden and Jones 1972; 1976; 1980; Brunsden and Moore 1999; Brunsden and Thornes 1979; Brunsden *et al.* 1996; Bulmer *et al.* 2002; Chandler and Brunsden 1995; Chandler and Cooper 1989; Conway 1974; 1979; Cooper *et al.* 1995; Lang, 1928; 1953; May 2003a; Moore 1988) and summarised by Cooper (2007). The description of the episodic behaviour of Black Ven and the models developed from it (Chandler and Brunsden 1995; Brunsden and Chandler 1996) are arguably one of the most significant contributions to geomorphological understanding not only of Dorset's landslides but also landslides worldwide. The principle has much wider application, as will be discussed later in this review.

The coast between White Nothe and Worbarrow Tout is a world-renowned example of longitudinal coastal development and the effects of differential erosion (Fig. 2). Lulworth Cove is probably the most visited and well-known site, not least because of its distinctive and uncommon near-circular form bay, resulting from the differential erosion of strata of differing strengths (Burton 1937; Horsfall 1993). Despite the focus on Lulworth Cove, for example, most explanations ignore the sea bed off the cove as a source of evidence of its development.

A key question concerns the extent to which the entrance to the cove was preferentially eroded by the Lulworth stream. Brunsden and Goudie (1981) believed that fluvial erosion could account for this when sea-level was substantially lower during glacial periods. Nowell (1998) suggested the presence of a significant fault aiding greater downcutting of the cove. However, although Heeps (1986) reported several small faults on the seabed opposite the mouth of the cove, there is no evidence of a continuation of the valley seawards. Drayson (2005), using side-scan sonar, showed that uninterrupted offshore ledges formed in landwards-dipping strata straddle the mouth of Lulworth Cove, strong evidence that no submerged valley exists in the mouth of the cove (Fig. 2). Although it could well have been formed through fluvial or mass movement activity, water did not flow out of the cove in a distinct channel when sea level was below the depth of the present seabed (–5 metres Chart Datum), otherwise an incised channel would have been formed. Only when sea level rose above minus 5 metres could the sea erode and remove material

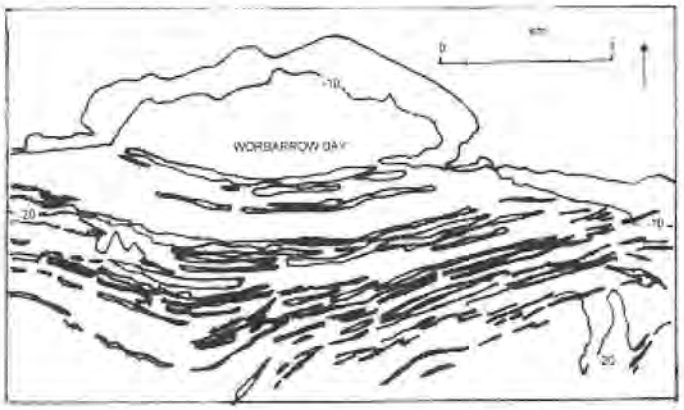


Figure 2: Rock ledges off Worbarrow Bay, where they are typically formed of strata dipping landwards. There are areas of boulders along the foot of the cliffs both east and west of the mouth of the bay and between the 12m isobath and the shoreline east of the bay. Depths are in metres below Chart Datum (figure based on Drayson 2005)

behind the Portlandian entrance. Once sea level falls below –5 metres, coastal processes no longer have an effect within Lulworth Cove. Lulworth Cove probably formed when sea levels were at or very near to the present level, not when sea levels were substantially lower as proposed by Goudie and Brunsden (1997). Allison's (1982) comment that this site remains 'poorly described' is partially alleviated by the submarine evidence, but it does not address the question of the extent to which a single erosional phase developed it or whether it has been flooded and reworked during previous higher sea levels (Goudie and Brunsden 1997).

In contrast, there is a distinct gap in the submerged Portland and Purbeck beds in Worbarrow Bay, between Mupe Rocks and Worbarrow Tout (Fig. 2). If sea level fell today, Worbarrow Bay would continue to be flooded by the sea until it was about 12m below present levels. There is no clear evidence of a valley across Worbarrow Bay between the reef and Arish Mell where the Chalk is breached in a small cove. There is, however, some evidence of a shallow valley in the gentle offshore slope beyond the Portland–Purbeck reef (Drayson 2005).

Unlike both Lyme Bay and Poole Bay, much of the cliffed coast of Weymouth Bay is marked by vegetated and comparatively stable cliffs. Between St Aldhelm's Head and Durlston Head, the cliffs are being reworked, with erosion of angular slope deposits, some localised erosion of the bedrock and removal of valley infill over the last 6000 years, at a rate of retreat comparable to present-day retreat rates of about 0.03m a^{-1} (May 2003b). There has been no comprehensive survey of the major landslides at White Nothe and St Aldhelm's Head, probably because they threaten little and appear very quiescent when compared to those of West Dorset (May 1997, 2003b). The large landslide at St Aldhelm's Head is covered by angular debris and large boulders that have toppled from the upper cliffs on to the under-

lying Kimmeridge clays and provide very effective protection along the shoreline against erosion of the exposed headland. Small (1970) suggested a periglacial origin for the angular debris, but this idea has not been tested in the field. The landslides at Emmet's Hill, Houns Tout and further west at White Nothe are well vegetated and there is little evidence of their dates, although May (2003b, 634) describes them as 'of various (but as yet undetermined) ages'. At Houns Tout, evidence of an 18th-century track across the undercliff suggests that the landslide was stable, although it has moved significantly since then. These landslides are all increasingly affected by gradual breakdown of the previously protective boulder ramparts and the resulting removal of the Kimmeridge clays at their toe. In contrast, at Gad Cliff, high cliffs are affected by toppling on to a vegetated middle slope where there have been localised movements. The minimal retreat of their toe can be attributed to natural armouring by cliff-foot boulder fields. Offshore from Gad Cliff, there are large accumulations of boulders which can be interpreted as resulting from cliff retreat during a lower or rising sea-level (Drayson 2005).

Hard-rock cliff failures on the Purbeck coast have been the focus of both field investigation (Mottram 1972) and the development of models for hard-rock failure mechanisms (Allison 1986; 1989; Allison and Brunsden 1990; Allison and Kinder 1998; Kimber *et al.* 1998): yet another example of mass-movement modelling which has significantly wider implications for our understanding of landform development. Digital technologies have extended the methods available for interpretation and calibration of these models (e.g. Rosser *et al.* 2005). However, the application of these hard-rock coast studies to the wider coastline (Jones *et al.* 1984) has not always gone uncriticised (Poole 1987). The stacks at Handfast Point are another much visited site (May, in press), used as a classic example of cave-arch-stack formation but having a more complex origin than the usual model (May 2003c; May and Heeps 1985).

Although evidence for reworking of an earlier Purbeck coastline is circumstantial, there is evidence for reworking the coast elsewhere. For example, a former coastal platform, largely planed-off bedrock, continues underneath the Chesil shingle barrier to the northern shore of the Fleet. The junction between the platform and the coastal slopes and an associated ancient pebble and cobble storm beach (Carr and Blakeley 1973) occur at about –15m OD opposite East Fleet (CEGB 1968), and at comparable depths further west. Solifluction materials at West Bexington overlie evidence of an emerged beach at a similar altitude to the Portland emerged beaches, implying that the western part of an extended Fleet would be a very old feature (Brunsden and Goudie 1997).

The sources of sediment for and the origins of the Chesil shingle barrier have been discussed for well over one hundred years (May 2003d). As sea levels fell at least twice following the higher sea levels evidenced by the emerged beaches on Portland Bill (Campbell *et al.* 1997), the coastal landslides would have become quiescent. The newly exposed former sea floor would have been affected by periglacial processes and, like other emergent rocky coasts, such as the south-eastern shores of Hudson Bay, Canada, marked by extensive abandoned beaches. Models of a proto-Chesil beach gradually transgressing the sea floor probably oversimplify its origins. There are two key reasons for this. First, the sea bed is not planar. Even close to the present shore, it is formed by broadly shore-normal rock outcrops (Nunny 1995), notably opposite the Fleet, which would affect wave refraction and probably produced a more segmented coastline with beaches in smaller headland-bay sediment cells rather than the presumed planar seabed with its present-day shore-parallel wave approach. Second, the present and past distributions of previously abandoned sediments are affected by the location of higher rock areas as well as the dynamics of sea bed sediment sheets. More than 50% of the sediments in depths of less than 25m between Abbotsbury and Burton Bradstock are mainly gravel with wave-oriented megaripples, separated by extensive areas of bare rock (Nunny 1995). There is no doubt that the Fleet has been bounded for at least 7000 years (Brunsden and Goudie 1997; Carr and Blackley 1974) on its seaward side by a long barrier beach, but this may only have become significant in shallower waters. May (2003d) reviewed the evidence for the development of Chesil Beach and concluded that a most probable scenario is that the beach is the end result of two processes: the migration of beaches across Lyme Bay to form a low beach, followed by a rapid build-up resulting from the re-activation of the large chert-filled landslides, abandoned by falling early Devensian sea-levels, when the shoreline moved into the shallower coastal areas. Large quantities of gravel were transported eastwards to feed and enlarge Chesil Beach (Bray 1990a; 1990b). These intimate links between the landslides and beach sediment supply (Fig. 3) and transport are equally important today (Bray 1990a; 1990b; 1992; 1996; 1997; 1999) although modified by artificial structures at Lyme Regis and West Bay (May 2003a; 2003d; 2007) and gravel extraction (Bird 1989).

Like Lulworth Cove, the sandy beach and dunes at Studland are intensively used by educational groups. Explanations of their origin and development have also said little about the sea bed as a source or sink of sediment and the associated changes in dunes and beach (May 2003e). The coast of Poole and Christchurch Bays has been extensively investigated for coast protection reasons and there is a considerable wealth of data (e.g. BP Exploration 1991; Halcrow Maritime 1999; 2004; Hydraulics Research 1991; Lacey 1985; Pearce 2004; Royal Haskoning 2004; Turner 1990; Tyhurst 1976). Bray *et al.* (1992) predicted the probable changes to the beach sediment budget as a result of sea-level rise. The origins of the dunes and their evolution described by

Figure 3: Boulder arcs below Golden Cap. Landslide toes become depleted of the finer sediments, leaving the larger boulders in the arcuate forms of the original toe. As sea level rises, these arcs will be submerged. Arcs on the seabed detected by sonar surveys help identify positions of landslide toes when the coast was further seawards and sea level lower (Badman et al. *1999; May 2003c; Drayson 2005)*

Diver (1933), Robinson (1955) and Carr (1971) relied on navigational charts for the offshore history of Studland Bay. In contrast, the most detailed map of the dunes was produced by Wilson (1960) as part of his study of soils and time at the site. Gardner and McClaren (1999) investigated infiltration rates in the dunes. Most recently, Cook (2007) reviewed all this data and supplemented it with further surveys from which models for the complex interrelationships were developed. Unusually, this study has considered the hierarchy of time and space scales of both form and process, and demonstrated how they interact. Furthermore, this study has demonstrated the intimate links between the geomorphology of the seabed, the beaches and the dunes. The National Trust has taken the deliberate decision to remove coast protection structures and to plan for retreat of the southern part of the dunes (Banyard *et al.* 2007).

Estuarine Geomorphology

Although it may appear artificial to separate estuarine geomorphology from the rest of the coast, there are strong arguments for doing this. First, because of their enclosed form, the Dorset estuaries are characterised by lower wave energy climates than the open coast even though surges and large waves may propagate into them. Second, the geomorphology of estuaries is strongly affected by the ways in which sediments are deposited and then colonised by vegetation, often providing a base for beaches (May 1976). Of the five estuaries and lagoons in Dorset, the Brit and Wey are now almost entirely infilled and artificial. Houses, marinas and port facilities typify the north and east shorelines of Poole and Christchurch Harbours, and the Fleet is largely undeveloped (Bird 1972), apart from around Small Mouth, and has been the focus of a number of publications by the Fleet Study Group. Poole Harbour is one of Europe's largest lowland estuaries (more than 3500 ha) but its catchment is smaller than that of Christchurch Harbour, which takes the waters from much of the Vale of Blackmoor, Cranborne Chase and Salisbury Plain, as well as many small streams from the west side of the New Forest. Whereas most fluvial sediment entering Poole Harbour is deposited in the harbour itself, at Christchurch the sediment plume under flood conditions extends beyond Hengistbury Head and Highcliffe.

Green's (1940) hydrographic survey of Poole Harbour provided an important baseline for subsequent work, but most later studies have concentrated on its ecology (see Humphreys and May 2006), not least because of the importance of the invasion of *Spartina anglica* at the end of the 19th century (e.g. Raybould 2006) and its subsequent use worldwide in estuarine reclamation (Ranwell 1967). The earliest preserved geomorphological landscape of Poole Harbour comprises valleys and terraces associated with the Solent River (Everard 1954) with River Terrace Deposits, typified by gravel and sand deposits up to 3m thick, at up to +50m OD (Bristow *et al.* 1991). As sea levels fell, the rivers cut meandering channels to at least –13m OD, with low hills and ridges separating two separate drainage systems.

When sea level rose, it attained present levels about 6000 BP. Sea levels were lower during the Iron Age and the late 3rd century AD to about –2.7m OD (May 2006). Assuming no change in tidal range (unlikely but not quantified) and mean tide level at this level, erosional retreat could occur at about –1.8m OD (i.e. almost 1m higher: May 2006), a similar altitude to a step beneath the Arne salt marshes (Edwards 2001). However, sand layers in corings at Arne and Newton Bay (Long *et al.* 1999) are not necessarily the result of erosional phases (May 2006), since they could result from sediment redistribution as part of the wider estuarine sedimentary transfers.

For the past six millennia, channels, islands and intertidal ridges and flats have characterised the harbour, but although its present mouth is well established, the point at which the harbour flooded during rapid Holocene sea-level rise is uncertain. By about 7500 yr BP (Godwin *et al.* 1958), sea level reached about –12.5m OD, but the bedrock altitude in the present entrance channel (–10.6m OD) would prevent the harbour flooding via this route . However, it is probable, although unconfirmed, that a deeper bedrock channel at about –14m OD opposite the narrow neck of Sandbanks between Sandbanks and Flag Head formed a separate entrance to the northern harbour. The 19th-century arrival of *Spartina anglica*, large-scale reclamation around Poole (May 1969) and the regular maintenance and capital dredging of the main channels have altered the detailed shape of the estuary (Humphreys and May 2006), reducing its area and restricting the tidal prism.

Submarine Geomorphology

Comparatively little was known about Dorset's submarine geomorphology until recently, apart from the deeper-water surveys of the sediment patterns of the Shambles and the Lulworth Banks (Donovan and Stride 1961; Pingree 1978). The few studies of the submarine geomorphology of the seabed off Dorset, such as oil and gas exploration surveys of the sediment and bedrock patterns of Lyme Bay (Nunny 1995), typically looked at large areas. For example, Velegrakis (1994) and Velegrakis *et al.* (1999; 2000) examined the evolution of Poole and Christchurch Bays and Drayson (2005) investigated north Weymouth Bay. More localised studies of the sea bed (Badman at al 1999; Cook 2007; Heeps 1986; 1987; 1998) have analysed seabed boulder patterns, sand sheets and ripples and sediment movements. A number of seabed habitat surveys have also been carried out but they have given only limited consideration to the geomorphology. Consideration of all of these studies, together with earlier work by Donovan and Stride (1961) and Pingree (1978), shows that, although the whole coast was subject to the same overall pattern of Holocene sea-level change, different submarine landforms occur. Poole and Christchurch Bays show evidence of palaeovalleys linked to the major terrestrial rivers, the Frome and Piddle, draining through Poole Harbour, and the Avon and Stour rivers through Christchurch Harbour. Wright (1982) suggested that a southern re-orientation of the east–west drainage in Poole Bay began in the early Devensian. During periods of lower sea levels, the river was constrained by the Wight-Purbeck ridge to a system of channels down to 46m below present sea level (Dyer 1975). When the sea level was about 120m below present sea level, streams incised into the chalk cuesta allowing the final breaching of the connection between the Isles of Wight and Purbeck. Later eustatic sea-level rise drowned the rivers to form the estuaries (Allen and Gibbard 1993; Edwards 2001; Nicholls 1986; Nicholls and Webber 1989; Velegrakis *et al.* 1999). Tyhurst and Hinton (2004) suggested that Poole Bay was deeper than Christchurch Bay for much of the late Holocene, and Velegrakis *et al.* (1999) believe that the lack of palaeovalleys there results from its later and rapid inundation. As the bays flooded and the coastal configuration changed, tidal range would also alter, and so the nature and rate of coastal changes would differ from today, but Tyhurst and Hinton's suggestion has not been followed-up.

In contrast, Lyme Bay off Dorset reveals limited evidence of earlier drainage systems, such as a continuation of the Char valley (Badman *et al.* 1999). The rivers drain significantly smaller catchments than those in the eastern county. Weymouth Bay is predominantly a landscape of geological structures planed across by a repeatedly rising sea with only small streams draining into it. There is, however, an enigma: the northern slopes of the Isle of Portland, which represent the southern escarpment of the formerly breached Weymouth anticlinorium, suggest that there must have been some drainage system between Lyme and Weymouth Bays. There is no obvious evidence of this on the existing sonar records.

In Weymouth Bay, Heeps (1986; 1987; 1998) and additional interpretation of later sidescan records (Drayson 2005; Drayson and May 2004) reveal an intricate morphology in which boulder accumulations, submerged platforms, ridges and troughs are cloaked by a veneer of sand, shell and coarser sediments. Repeated seabed surveys show that the veneer is subject to slight changes, but is unaffected by major changes (Heeps 1987). Some larger boulder fields are associated with areas where cliff failure carries boulders big enough to survive erosion to the shoreline, forming arcuate or linear rock ramparts (Fig. 3). That these areas continue offshore (Donovan and Stride 1961) suggests that these zones have been active over much of the period of Holocene sea level rise and of present sea level. Combining aerial photography and lidar of the cliffed coast with submarine acoustic survey using side-scan sonar of the sea bed both in Worbarrow Bay and further offshore (Fig. 2), it has been possible to describe the coastal zone from the cliff top to the seaward limit of wave action about 1km offshore (Drayson 2005; Drayson and May 2004). Drayson's geomorphological map of north Weymouth Bay classifies the sea bed landforms into eight categories. The gradient of the sea bed is

Table 1: Geological conservation review sites in Dorset

GCR Block	Location	Key features
Coastal geomorphology of Great Britain	Lyme Regis to Golden Cap	Soft-rock cliffs: landslides and beach sediment system
	Ballard Down	Soft-rock cliffs: cave-arch-stack-stump sequence
	Chesil Beach	Gravel and 'shingle beaches: shingle tombolo
	South Haven Peninsula	Sandy beaches and dunes
	The Dorset Coast: Peveril Point to Furzy Cliff	Coastal assemblage: concordant coast, semi-enclosed bays
Karst and caves of Great Britain	Culpepper's Dish	Large subsidence doline
Quaternary of South Central England	Blashenwell Farm	Large deposit of calcareous tufa
	Corfe Castle	Fluvial sediments and river gap
	Portland Bill	Emerged beaches
	Valley of the Stones	Sarsens – rock train
	Rimsmoor	Infilled doline
Mass-movements in Great Britain	Black Ven	Large active landslide
	Blacknor Cliffs, Isle of Portland	Toppling failure and related cave system

very low, generally below 1 in 125, and occasionally with angles less than 1°. If Weymouth Bay were to be drained, a near horizontal landscape of extensive rocky microcuestas (often revealing eroded folds), cloaked or interspersed with sand sheets typified by extensive ripple and wave patterns, would be exposed. This is the landscape of a transgressing sea on a rocky coast uninterrupted by significant fluvial features.

Conservation and Interpretation

Conservation and interpretation of the geomorphological features of the county has been important. There are eight specifically geomorphological and five Quaternary GCR sites wholly within the county (Table 1). Two sites, Axmouth to Lyme Regis Undercliff mass-movement site and the Solent Cliffs West Quaternary of South Central England site, lie almost entirely outside the county but have small areas within it. The Broom Pit Quaternary of South-West England site lies on the Devon–Dorset border. The evidence that the GCR coastal geomorphology and mass-movement sites in Dorset are of national and international importance added weight to the successful UK application for inscription of the Dorset and East Devon Coast as a natural World Heritage Site (Dorset County Council *et al.* 2000).

Eight locations are identified as Regionally Important Geological Sites (RIGS) on the basis of their geomorphological features (Table 2). The Dorset RIGS Group has suggested that designation of the entire Isle of Portland as a RIGS would emphasise the area's scientific importance and its high conservation status and provide a more coherent picture of the area's geological history than the fragmented character of the Sites of Special Scientific Interest (SSSIs). There are also a number of RIGS, such as Arne, which expose cross-sections of former terraces, etc. and so add to the geomorphological evidence for the development of the local landscape.

Table 2: Geomorphological RIGS

Site	Key features identified
Giant's Grave Bottom	Steep-sided dry valley cut in the eastern flanks of Godlingston Hill
Corfe Castle	Double water gap in the Chalk ridge of the Purbeck Hills. Superimposed river
Stonehill Down and the Cocknowle Gap	High level col and a dry valley cut in the Chalk ridge at a lower level
Charmouth foreshore and river	Coastal foreshore and river bank exposure
Badbury Rings and Chalklands of north-east Dorset	Chalk escarpment, dipslope and sub-Eocene surface
Melbury Down	Side slope of a deep valley system that is now completely dry, probably formed under periglacial conditions.
Melbury Hill	Probably an important remnant of a middle Tertiary fluvial erosion surface. Possible monadnock
Mutton Hole, Edmondsham	Doline, or swallow hole

Biological SSSIs and National Nature Reserves (NNRs) depend on the underlying landforms and soils as the base for the habitat. Many of these sites have important geomorphological characteristics that deserve more detailed investigation. Another neglected area of

the county's geomorphology is its rivers. Several lengths of the rivers display good examples of meanders, although in some locations the management of the floodplains by water meadows has affected them. However, human involvement in changing the natural features should not be ignored as some of these locations have been developing geomorphologically under a regime of processes that include intensive anthropogenic activity.

Linking the Different Geomorphological Themes

Although a great deal is known about parts of the geomorphological landscape of Dorset, gaps in our knowledge remain. Important though the site-by-site approach may be, it has not been accompanied by a synthesis of what these sites viewed together tell us about the nature and evolution of the Dorset landscape as a whole. Today, there is a largely quiescent inland geomorphology dominated by gradual weathering and soil development, now often accelerated by soil erosion as previously pastoral land has been ploughed, notably during the 20th century. Over the much longer period since the Tertiary, the area has been dominated by drainage systems flowing mostly along a west–east alignment with major tributaries from the north and north-west, sometimes into a shallow sea in which formed the 'Bournemouth Delta', and later as the 'Solent River', ultimately to be diverted in the late Quaternary southwards through the breached Purbeck–Isle of Wight chalk ridge. South of the chalk, small streams either flowed directly into the English Channel or occasionally, as at Corfe, cut through the ridge. The rivers have well-developed sequences of terraces, thought to result mainly from localised uplift. However, the coast itself displays evidence of changing sea levels, not only at Portland Bill but also behind Chesil beach. Although most understanding of Quaternary history (e.g. Gibbard and Lautridou 2003), sea-level change (e.g. Long and Shennan 1993; Long and Tooley 1995; Waller and Long 2003) and periglacial processes (Murton and Lautridou 2003) in the English Channel is provided by other locations, especially to the east, the implications of these changes for the local coast warrant further investigation.

At the coast, the present geomorphology falls into three distinct zones: a zone of active landslides and decreasing supply of sediment to Chesil beach within the Lyme Bay system, a much less active coast dominated by cliffs, small bays and gravel beaches in Weymouth Bay and a largely human altered coastline in Poole and Christchurch bays. Offshore, Poole and Christchurch Bays are dominated by palaeovalley systems and gravel and sand deposits. Lyme Bay is notable for its extensive rocky outcrops, often of considerable biological importance, interspersed with gravel and sand sheets. Weymouth Bay is a prime example of a coast of transgression across multiple folds with re-activation of old landslides some 2500 years after those in Lyme Bay.

One overriding conclusion is that the very important episodic models developed by Brunsden and Chandler (1996) on the Black Ven landslide have a more general application. This whole Dorset landscape was formed during periods of intense activity, sometimes over relatively short periods within a given timescale. For example, the periods when sea level was high are shorter episodes within a longer period when the sea's influence was removed from the present coast. Similarly, episodic effects occur within the human activities that affect the coastal processes. The early 20th-century construction of seawalls (promenades) at Bournemouth had a lasting effect on the subsequent processes. Jetties on the West Dorset coast introduced significant changes to the geomorphological system (May 2007). Often these changes, like the arrival of the new hybrid *S. anglica* in Poole Harbour, bring about both state and threshold changes in the system.

The Continuing Evolution of Geomorphological Enquiry in Dorset

In reflecting on the way in which the study of Dorset's geomorphology has evolved, it becomes apparent that geomorphological enquiry here, as elsewhere, has shifted from the teleological of the early 19th century (Buckland 1820; 1824) through the immanent and historical bases of theory (Chorley 1978) to paradigms focused first on the description and interpretation of denudation history (denudation chronology) and then to a central emphasis on earth science processes and landforms and thence to an increased emphasis on mapping, measuring and monitoring the changing landscape, accompanied by increasing use of modelling and the application of digital tools. Just as the landforms have been affected by periods of intense activity between more quiescent periods, so has the geomorphological activity.

As geomorphology shifted nationally in the 1960s from the denudation chronology paradigm, so also did geomorphological enquiry in Dorset. However, the West Dorset landslides were one of the first locations where national funding bodies supported research activities that concentrated on the repeated measurement and monitoring of processes in the field (other than in river channels). It was probably one of the first locations where detailed monitoring of slope processes was resourced in the United Kingdom (Allison, pers. comm.) – an investment reflected in not only the long record of geomorphological research, but also the international recognition and adoption of the methodology. Throughout this review, there is an underlying theme of our understanding of the landscape and its geomorphology changing as different theoretical stances developed, as research itself advanced, as new techniques have been developed or adopted and as new generations of scholars have been drawn to the area and built their own reputations.

We can also observe the developing role of geomorphological investigation and methods in both advancing geomorphology within geography, and the development of its links with other disciplines and public needs in applications to engineering (Brunsden *et al.* 1978), coastal sediment transport (Bray *et al.* 1991; 1995), conservation and even tourism. The increased emphasis on monitoring landscape and coastal change needs to be accompanied by rigorous insights into the understanding of these changes and their effects on how the local human community can influence them. Little of the early geomorphology considered the role of humans as part of the geomorphological process, yet in parts of Dorset today the most significant land-forming processes come from attempts to manage the landscape (May 2003f; 2007; in press). As yet, the geomorphological methodologies have not been applied here to the implications of climate change (whatever its form or causes), with the important exception of Bray and Hooke (1997) concerning the implications of soft-cliff retreat under accelerated sea-level rise. The opportunities that geomorphological modelling provides for prediction (not forecasting) of probable future landscapes have yet to be taken.

Conclusions

Although many of the studies reviewed above focused on processes and forms within particular time and spatial scales, they inevitably pose questions about the linkages between process and form at different time and spatial scales. Re-interpretation of both individual sites and the wider landscape may be necessary, and translated into the educational materials which support conservation of many sites. The conservation of the geomorphological features by an extensive network of designated areas underlines the national and international importance of Dorset's geomorphology. The human and natural systems are inextricably coupled along the coast (May 2004b; 2007) and inland, not only through the effects, both deliberate and accidental, on the coastal geomorphology, but also on the economy as tourism attractions, on education and the wider landscape.

BIBLIOGRAPHY

Allen L.G. and Gibbard, P.L., 1993 'Pleistocene evolution of the Solent River of Southern England', *Quaternary Science Reviews* **12**, 503–28.

Allison, R.J., 1982 'Evolution of Lulworth Cove and associated features', *Proceedings of the Dorset Natural History and Archaeological Society* **104**, 202.

Allison, R.J., 1986 *Mass Movement and Coastal Cliff Development of the Isle of Purbeck, Dorset*. Unpublished PhD thesis, University of London.

Allison, R.J., 1989 'Rates and mechanisms of change in hard rock coastal cliffs', *Zeitschrift für Geomorphologie – Supplementband* **73**, 125–38.

Allison, R.J., 1990 *Landslides of the Dorset Coast, British Geomorphological Research Group Field Guide*. London: British Geomorphological Research Group.

Allison, R.J. (ed.), 1992 *The Coastal Landforms of West Dorset*. London: Geologists' Association.

Allison, R.J. (ed.), 1999 *Dorset Revisited: position papers and research statements*. British Geomorphological Research Group Spring Field Meeting 1999, West Dorset Coastal Research Group.

Allison, R.J. and Brunsden, D., 1990 'Some mudslide movement patterns', *Earth Surface Processes and Landforms* **15**, 297–311.

Allison, R.J. and Kimber, O.G., 1998 'Modelling failure mechanisms to explain rock slope change along the Isle of Purbeck coast, UK', *Earth Surface Processes and Landforms* **23**, 731–50.

Arber, M.A., 1941 'The coastal landslips of West Dorset', *Proceedings of the Geologists' Association* **52**, 273–83.

Arkell, W.J., 1947 *The Geology of the Country around Weymouth, Swanage, Corfe and Lulworth: Explanation of Sheets 341, 342, 343, with small portions of Sheets 327, 328, 329*. Memoir (Sheet) of the Geological Survey of Great Britain (England and Wales) – New Series, London: HMSO.

Arkell, W.J., 1951 'The structure of Spring Bottom Ridge and the origin of the mud-slides, Osmington, Dorset', *Proceedings of the Geologists' Association* **62**, 21–30.

Arkell, W.J., 1954 'The effects of storms on Chesil Beach in November 1954', *Proceedings of the Dorset Natural History and Archaeological Society* **76**, 141–5.

Arkell, W.J., 1955 'Geological results of the cloudburst in the Weymouth district, 18th July, 1955', *Proceedings of the Dorset Natural History and Archaeological Society* **77**, 90–7.

Badman, T.D., Gravelle, M.A. and Davis, G.M., 1999 'Seabed imaging using a computer-mapping package: an example from Dorset', *Journal of Engineering Geology and Hydrogeology* **33**, 171–75.

Banyard, L., Richmond, A., Fish, P. and Jarman, R., 2007 'Managing managed realignment of an exposed coastal shoreline', in Smith, J.M. (ed.), *Coastal Engineering 2006: Proceedings of the 30th International Conference* Singapore: World Scientific Publishing Co Pte Ltd, 1912–24.

Bird, E.C.F., 1968 *Coasts*. Canberra: Australian National University Press.

Bird, E.C.F., 1972 'The physiography of the Fleet', *Proceedings of the Dorset Natural History and Archaeological Society* **93**, 119–24.

Bird, E.C.F., 1989 'The beaches of Lyme Bay', *Proceedings of the Dorset Natural History and Archaeological Society* **111**, 91–7.

BP Exploration, 1991 *Hook Island – Poole Bay: Private Bill – Environmental Study*.

Bray, M.J., 1990a *A geomorphological investigation of the south-west Dorset coast: report to Dorset County Council and West Dorset District Council, Volume 2: Patterns of sediment transport*.

Bray, M.J., 1990b 'Landslide and littoral zone sediment transport', in R.J. Allison (ed.), *Landslides of the Dorset Coast, BGRG Field Guide*, London: British Geomorphological Research Group 107–17.

Bray, M.J., 1992 'Coastal sediment supply and transport', In R.J. Allison (ed.), *The Coastal Landforms of West Dorset*, London: Geologists' Association, 94–105.

Bray, M.J., 1996 *Beach Budget Analysis and Shingle Transport Dynamics in West Dorset*. Unpublished PhD thesis, University of London.

Bray, M., 1997 'Episodic shingle supply and the modified development of Chesil Beach, England', *Journal of Coastal Research* **13**, 1035–49.

Bray, M., 1999 'The coastal system of West Dorset', in R.J. Allison (ed), *Dorset Revisited: position papers and research statements*. British Geomorphological Research Group Spring Field Meeting 1999, West Dorset Coastal Research Group, 7–16

Bray, M.J. and Hooke, J.M., 1997 'Prediction of soft-cliff retreat with accelerating sea-level rise', *Journal of Coastal Research* **13**, 453–67.

Bray, M.J., Carter, D.J. and Hooke, J.M., 1991 *Coastal Sediment Transport Study*. Vols 1–5. Report to SCOPAC: Portsmouth Polytechnic

Bray, M.J., Carter, D.J. and Hooke, J.M., 1992 *Sea-level Rise and Global Warming: Scenarios, Physical Impacts and Policies*. Report to SCOPAC: Portsmouth Polytechnic.

Bray, M.J., Carter, D.J. and Hooke, J.M., 1995 'Littoral cell definition and budgets for central south England', *Journal of Coastal Research* **11**, 381–400.

Bristow, C.R., Freshney, E.C. and Penn, I.E., 1991 *Geology of the Country around Bournemouth. Memoir 1:50,000 Geology Sheet 329 (England and Wales)*, London: HMSO.

Brunsden, D., 1990 'Tablets of stone: towards the Ten Commandments of geomorphology', *Zeitschrift für Geomorphologie Supplementband* **79**, 1–37.

Brunsden, D., 1993 'The persistence of landforms', *Zeitschrift für Geomorphologie Supplementband* **93**, 13–28.

Brunsden, D., 1996 'Landslides of the Dorset coast – some unresolved questions', *Proceedings of the Ussher Society* **9**, 1–11.

Brunsden, D., 1999 'Some geomorphological considerations for the future development of landslide models', *Geomorphology* **30**, 13–24.

Brunsden, D. and Chandler, J.H., 1996, 'Development of an episodic landform change model based upon the Black Ven mudslide, 1946–1995', in M.G. Anderson and S.M. Brooks (eds), *Advances in Hillslope Processes*. British Geomorphological Research Group Symposia Series, Chichester: Wiley, 869–96.

Brunsden, D. and Goudie, A., 1981 *Classic Coastal Landforms of Dorset*. Classic Landform Guides, No. 1, Sheffield: Geographical Association.

Brunsden, D. and Goudie, A., 1997 *Classic Landforms of the West Dorset Coast*. Classic Landform Guides, Sheffield: Geographical Association.

Brunsden, D. and Jones, D.K.C., 1972 'The morphology of degraded landslide slopes in south-west Dorset', *Quarterly Journal of Engineering Geology* **5**, 205–22.

Brunsden, D. and Jones, D.K.C., 1976 'The evolution of landslide slopes in Dorset', *Philosophical Transactions of the Royal Society of London, Series A* **283**, 605–31.

Brunsden, D. and Jones, D.K.C., 1980 'Relative time scales and formative events in coastal landslide systems', in A.R. Orme, D.B. Prior, N.P. Psuty and H.J. Walker (eds), *Coasts Under Stress, Zeitschrift für Geomorphologie, Supplementband* **34**, 1–19.

Brunsden, D. and Moore, R., 1999 'Engineering geomorphology on the coast: lessons from west Dorset', *Geomorphology* **31**, 391–409.

Brunsden, D. and Thornes, J.B., 1979 'Landscape sensitivity and change', *Transactions of the Institute of British Geographers, New Series* **4**, 463–84.

Brunsden, D., Doornkamp, J.C. and Jones D.K.C., 1978 'Applied geomorphology: a British view', in C. Embleton, D. Brunsden and D.K.C. Jones (eds.), *Geomorphology: present problems and future prospects*. Oxford: Oxford University Press, 251–62.

Brunsden, D., Coombe, K., Goudie, A.S. and Parker, A.G., 1996 'The structural geomorphology of the Isle of Portland, southwestern England', *Proceedings of the Geologists' Association* **107**, 209–30.

Buckland, W., 1820 *Vindiciae Geologicae: or the Connexion of Geology with Religion Explained*. Oxford: Oxford University Press.

Buckland, W., 1824 'On the excavation of valleys by diluvial action, as illustrated by a succession of valleys which intersect the south coast of Dorset and Devon', *Transactions of the Geological Society* Series **2**, 95–102.

Bulmer, M.H.K., Mantovani, F., Murphy, W. and Petley, D., 2002 'SAR interferometry in landslide monitoring; experiences from Black Ven landslide, Dorset 2001', in D. Delahaye, F. Levoy and O. Maquaire (eds.), *Proceedings of the Symposium on 'Geomorphology: from Expert Opinion to Modelling', Strasbourg, France*. Strasbourg: CERG Editions, 21–7.

Burton, H. St J., 1937 'The origin of Lulworth Cove', *Geological Magazine* **74**, 377–83.

Bury, H., 1920 'The chines and cliffs of Bournemouth', *Geological Magazine* **57**, 71–6.

Bury, H., 1933 'The plateau gravels of the Bournemouth area', *Proceedings of the Geologists' Association* **44**, 314–35.

Bury, H., 1936 'Some anomalous river features in the Isle of Purbeck', *Proceedings of the Geologists' Association* **47**, 1–10.

Calkin, J.B. and Green, J.F.N., 1949 'Palaeoliths and terraces near Bournemouth', *Proceedings of the Prehistoric Society* **15**, 21–37.

Campbell, S., Hunt, C.O., Scourse, J.D. and Keen, D.H., 1997 *Quaternary of South-West England*, Geological Conservation Review Series, No. 14, Peterborough: Joint Nature Conservation Committee.

Carr, A.P., 1971 'South Haven peninsula: physiographic changes in the twentieth century', in P. Merrett (ed.), *Captain Cyril Diver, a Memoir*, Furzebrook Research Station: Nature Conservancy Council, 32–8.

Carr, A.P. and Blackley, M.W.L., 1974 'Investigations bearing on the age and development of Chesil Beach, Dorset, and the associated area', *Transactions of the Institute of British Geographers* **58**, 99–111.

Central Electricity Generating Board, 1968 *Investigation of prospective nuclear power station sites: Portland Harbour and Tidmoor Point: part 1. Hydrographic Survey*.

Chandler, J.H. and Brunsden, D., 1995 'Steady state behaviour of the Black Ven mudslide: the application of archival analytical photogrammetry to studies of landform change', *Earth Surface Processes and Landforms* **20**, 255–75.

Chandler, J.H. and Cooper, M.A.R., 1989 'The extraction of positional data from historical photographs and their application to geomorphology', *The Photogrammetric Record* **13**, 69–78.

Chorley, R.J., 1978 'Bases for theory in geomorphology', in C. Embleton, D. Brunsden and D.K.C. Jones (eds), *Geomorphology: present problems and future prospects*. Oxford: Oxford University Press, 1–13.

Clayton, K.M., 1964 *A Bibliography of British Geomorphology*. London: George Philip & Son Ltd.

Conway, B.W., 1974 'The Black Ven landslip, Charmouth, Dorset', Institute of Geological Sciences, *NERC Report* **74/3**.

Conway, B.W., 1979 'The contribution made to cliff instability by head deposits in the West Dorset coastal area' *Quarterly Journal of the Geological Society* **12**, 267–79

Cook, R.L., 2007 *Spatial and Temporal Scales of Morphodynamics Evolution within the Studland Complex*. Unpublished PhD thesis, Bournemouth University.

Cooper, R., 2007 *Mass Movements in Great Britain*, Geological Conservation Review Series No. 33, Peterborough: Joint Nature Conservation Committee.

Cooper, R.G., Ryder, P.F. and Solman, K.R., 1995 'Solutional cave passages intersected by mass movement rifts in the Isle of Portland', *Studies in Speleology* **10**, 29–35.

Cotton, J.A., G. Wharton, G., Bass, J.A.B., Heppell, C.M., and Wotton, R.S., 2006 'The effects of seasonal changes to in-stream vegetation cover on patterns of flow and accumulation of sediment', *Geomorphology* **77**, 320–34.

Davis, W.M., 1895 'The development of certain English rivers', *Geographical Journal* **5**, 127–46.

Diver, C., 1933 'The physiography of the South Haven Peninsula, Studland Heath, Dorset', *Geographical Journal* **81**, 404–27.

Donovan, D.T. and Stride, A.H., 1961 'An acoustic survey of the sea floor south of Dorset and its geological interpretation', *Philosophical Transactions of the Royal Society of London* **B244**, 299–330.

Doornkamp, J.C., 1964 'Subaerial landform development in relation to past sea levels in a part of south Dorset', *Proceedings of the Dorset Natural History and Archaeological Society* **85**, 71–7.

Dorset County Council, Devon County Council and the Dorset Coast Forum, 2000 *Nomination of the Dorset and East Devon Coast for inclusion in the World Heritage List*. Dorchester: Dorset County Council.

Drayson, A., 2005 *An Investigation into the Shallow Seabed Geomorphology of North Weymouth Bay using Acoustic Techniques*. Unpublished PhD thesis, Bournemouth University

Drayson, A. and May, V., 2004 *Visualising the Seabed*. Bournemouth: Dorset Coast Digital Archive Available at http://www.dcda.org.uk/1-5seabed/3detailed.html [Accessed 26 November 2007]

Dyer, K.R., 1975 'The buried channels of the "Solent River", Southern England', *Proceedings of the Geologists' Association* **86**, 239–45.

Edwards, R.J., 2001 'Mid- to late Holocene relative sea-level change in Poole Harbour, southern England', *Journal of Quaternary Science* **16**, 221–35.

Ellis, N.V., Bowen, D.Q., Campbell, S., Knill, J.L., McKirdy, A.P., Prosser, C.D., Vincent, M.A. and Wilson, R.C.L. (eds), 1996 *An Introduction to the Geological Conservation Review*. Geological Conservation Review Series No.1, Peterborough: Joint Nature Conservation Committee.

Everard, C.E., 1954 'The Solent River: a geomorphological study', *Transactions of the Institute of British Geographers* **20**, 41–58.

French C.A.I., Lewis H.A., Scaife R. and Allen M., 2005 'New perspectives on Holocene landscape development in the southern

English chalklands: The upper Allen valley, Cranborne Chase, Dorset', *Geoarchaeology* **20**, 109–34.

French C.A.I., Lewis H.A., Allen M., Scaife R. and Green M., 2003 'Archaeological and palaeoenvironmental investigations of the upper Allen valley, Cranborne Chase, Dorset', *Proceedings of the Prehistoric Society* **69**, 201–34.

Gardner, R. and McLaren, S., 1999 'Infiltration and moisture measurements in coastal sand dunes, Studland, Dorset', *Journal of Coastal Research* **15**, 936–49.

Gibbard, P. and Lautridou, J.P., 2003 'The Quaternary history of the English Channel', *Journal of Coastal Research* **18**, 319–37

Gibbard, P. and Lewin, J., 2003 'The history of the major rivers of southern Britain during the Tertiary', *Journal of the Geological Society* **160**, 829–45.

Godwin, H., Suggate, R.P. and Willis, E.H., 1958 'Radiocarbon dating of the eustatic rise in ocean-level', *Nature* **181**, 1518–19.

Goudie, A. and Brunsden, D., 1997 *Classic Landforms of the East Dorset Coast*. Classic Landform Guides, Sheffield: Geographical Association.

Green, F.H.W., 1940 *Poole Harbour: a hydrographic survey 1938–1939*. London: Geographical Publications Ltd. For Poole Harbour Commissioners and University College, Southampton.

Green, J.F.N., 1943 'The age of the raised beaches of south Britain', *Proceedings of the Geologists' Association* **54**, 129–40.

Green, J.F.N., 1945 'History of the Bourne and its valley', *Proceedings of the Bournemouth Natural Science Society* **35**, 16–21.

Green, J.F.N., 1946 'The terraces of Bournemouth, Hants', *Proceedings of the Geologists' Association* **57**, 82–101.

Green, J.F.N., 1947 'Some gravels and gravel pits in Hampshire and Dorset', *Proceedings of the Geologists' Association* **58**, 128–43.

Green, J.F.N., 1949 'A tour of the terraces of the Avon and Stour', *Proceedings of the Bournemouth Natural Science Society* **39**, 52–9.

Gurnell, A.M., van Oosterhout, M.P., de Vlieger, B. and Goodson, J.M., 2006 'Reach-scale interactions between aquatic plants and physical habitat: River Frome, Dorset', *River Research and Application* **22**, 667–80.

Halcrow Maritime, 1999 *Poole and Christchurch Bays Shoreline Management Plan*.

Halcrow Maritime, 2004 *Poole Bay & Harbour Strategy Study – assessment of flood & coast defence options*, Final Report for Bournemouth & Poole Borough Councils – February 2004.

Heeps, C., 1986 *Sediment Circulation in Mixed Gravel and Shingle Bayhead Beaches on the South East Dorset Coast, UK*. Unpublished PhD thesis, Council for National Academic Awards.

Heeps, C., 1987 *Recognition and Prediction of Seabed Sediment Patterns*. MoD Report 2222/01/ARE(P).

Heeps, C., 1998 'Seabed geomorphology and shallow marine boulder fields, Dorset: the application of side-scan sonar to coastal geomorphological study and marine resource management', *Fourth Underwater Science Symposium, Collected papers*.

Horsfall, D., 1993 'Geological controls on coastal morphology', *Geography Review* **7**, 16–22.

Hosfield, R.T. and Chambers, J.C., 2003 'Recent research at the Broom Lower Palaeolithic site', *Antiquity* **77**, 297.

Hosfield, R.T. and Chambers, J. C., 2005 'Pleistocene geochronologies for fluvial sedimentary sequences: an archaeologist's perspective', *Journal of Quaternary Science* **20**, 285–96.

House, M., 1991 'Dorset Dolines: Part 1, Bronkham Hill', *Proceedings of the Dorset Natural History and Archaeological Society* **113**, 149–55.

Humphreys, J. and May, V. (eds), 2006 *Ecology of Poole Harbour*. London: Elsevier.

Hydraulics Research 1991 *Poole Bay Sediment Study*. Unpublished Technical Report EX2356

Jones, D.K.C., 1999 'Evolving models of the Tertiary evolutionary geomorphology of southern England, with special reference to the Chalklands', *Geological Society, London, Special Publications* **162**, 1–23.

Jones, M.E., Allison, R.J. and Gilligan, J., 1984 'On the relationship between geology and coastal landform in central southern England', *Proceedings of the Dorset Natural History and Archaeological Society* **105**, 107–18.

Jukes-Brown, A.J., 1895 'The origin of valleys of the Chalk Downs of North Dorset', *Proceedings of the Dorset Natural History and Archaeological Society* **16**, 5–13.

Jukes-Brown, A.J., 1898 'The origin of the Vale of Marshwood and of the Greensand hills of West Dorset', *Proceedings of the Dorset Natural History and Archaeological Society* **18**, 174–84.

Kimber, O.G., Allison, R.J. and Cox, N.J., 1998 'Mechanisms of failure and slope development in rock masses', *Transactions of the Institute of British Geographers* **23**, 353–70.

Lacey, S., 1985 *Coastal Sediment Processes in Poole and Christchurch Bays and the Effects of Coast Protection Works*. Unpublished PhD thesis, University of Southampton.

Lang, W.D., 1928 'Landslips in Dorset', *Natural History Magazine* **1**, 201–9.

Lang, W.D., 1953 'Mudflows at Charmouth', *Proceedings of the Dorset Natural History and Archaeological Society* **75**, 151–6.

Lang, W.D., 1962 'The submerged forest at the mouth of the river Char and the history of that river', *Proceedings of the Geologists' Association* **37**, 197–210.

Long, A.J. and Shennan, I., 1993 'Holocene relative sea-level and crustal movements in southeast and northeast England, UK', *Quaternary Proceedings* **3**, 15–19.

Long, A.J. and Tooley, M.J., 1995 'Holocene sea-level and crustal movements in Hampshire and southeast England, United Kingdom', *Journal of Coastal Research, Special Issue No. 17, Holocene Cycles: Climate, Sea-Levels, and Sedimentation*, 299–310.

Long, A.J., Scaife, R.G. and Edwards, R.J., 1999 'Pine pollen in intertidal sediments from Poole Harbour, UK; implications for late-Holocene sediment accretion rates and sea-level rise', *Quaternary International* **55**, 3–16.

Maddy, D., Bridgland, D.R. and Green, C.P., 2000 'Crustal uplift in southern England: evidence from the river terrace records', *Geomorphology* **33**, 167–81.

May, V.J., 1969 'Reclamation and shoreline change in Poole Harbour, Dorset', *Proceedings of the Dorset Natural History and Archaeological Society* **90**, 141–54

May, V.J., 1976 'Cliff erosion and beach development, Shipstal Point', *Proceedings of the Dorset Natural History and Archaeological Society* **97**, 8–12

May, V.J., 1997 'Physiography of coastal cliffs', in E. van der Maarel (ed.), *Dry Coastal Ecosystems: general aspects*. Amsterdam: Elsevier, 29–41.

May, V. J., 2003a 'Lyme Regis to Golden Cap, Dorset', in V.J. May, and J.D. Hansom (eds), *Coastal Geomorphology of Great Britain* Geological Conservation Review Series, No. 28, Peterborough: Joint Nature Conservation Committee, 151–8.

May, V.J., 2003b 'The Dorset coast: Furzy Cliff to Peveril Point', in V.J. May, and J.D. Hansom (eds), *Coastal Geomorphology of Great Britain* Geological Conservation Review Series, No. 28, Peterborough: Joint Nature Conservation Committee, 624–42.

May, V.J., 2003c, 'Ballard Down, Dorset', in V.J. May, and J.D. Hansom (eds), *Coastal Geomorphology of Great Britain* Geological Conservation Review Series, No. 28, Peterborough: Joint Nature Conservation Committee, 176–81

May, V.J., 2003d 'Chesil Beach, Dorset', In V.J. May, and J.D. Hansom (eds), *Coastal Geomorphology of Great Britain* Geological Conservation Review Series, No. 28, Peterborough: Joint Nature Conservation Committee, 254–66.

May, V. J., 2003e, 'South Haven Peninsula, Dorset', in V.J. May, and J.D. Hansom (eds), *Coastal Geomorphology of Great Britain* Geological Conservation Review Series, No. 28, Peterborough: Joint Nature Conservation Committee, 340–45.

May, V., 2003f 'Urban beaches: a European perspective on the uses, values and futures of urban beaches', in L. Ewing, T. Herrington and O. Magoon (eds), *Urban Beaches: balancing public rights and private development* American Society of Civil Engineers, Proceedings of the NSBPA 4th Annual Conference, 39–51.

May, V., 2004a *Dorset's Underwater World: marine charts*. Bournemouth: Dorset Coast Digital Archive. Available at http://www.dcda.org.uk/1–4underwater/3detailed.html#MarineCharts [Accessed 28 November 2007]

May, V.J., 2004b 'Coastal earth science conservation and ecogeotourism', in A. Micallef and A. Vassallo (eds), *Proceedings of the*

First International Conference on Management of coastal recreational resources: beaches, yacht marinas and coastal ecotourism. Malta: Euro-Mediterranean Centre on Insular Coastal Dynamics, Foundation for International Studies: Valletta, 251–6.

May, V., 2006 'Geomorphology of Poole Harbour', in J. Humphreys and V. May (eds), *Ecology of Poole Harbour*. London: Elsevier, 25–34.

May, V., 2007 'Sustainable management of a high value high risk coast: the role and effectiveness of technological interventions', in J.M. Smith (ed.), *Coastal Engineering 2006: Proceedings of the 30th International Conference* Singapore: World Scientific Publishing Co. Pte Ltd, 1925–37.

May, V., in press 'Integrating the geomorphological environment, cultural heritage, tourism and coastal hazards in practice', *Geografia Fisica e Dinamica Quaternaria*.

May, V.J. and Hansom J.D., 2003 *Coastal Geomorphology of Great Britain*, Geological Conservation Review Series, No. 28, Peterborough: Joint Nature Conservation Committee.

May, V. and Heeps, C., 1985 'The nature and rates of change on chalk coastlines', in E.C.F. Bird (ed.), *Geomorphology of Changing Coastlines, Zeitschrift für Geomorphologie, Supplementband* **57**, 81–94.

Moore, R.M., 1988 The clay mineralogy, weathering and mudslide behaviour of coastal cliffs. Unpublished PhD thesis, University of London.

Mottram, B., 1956 'Poxwell wind gap', *Proceedings of the Dorset Natural History and Archaeological Society* **78,** 71–2.

Mottram, B., 1972 'Some aspects of the evolution of parts of the Dorset coast', *Proceedings of the Dorset Natural History and Archaeological Society* **94**, 21–6.

Murton, J.B. and Lautridou, J-P., 2003 'Recent advances in the understanding of Quaternary periglacial features of the English Channel coastlands', *Journal of Quaternary Science* **18**, 301–7.

Nicholls, R.J., 1986 'The evolution of the upper reaches of the Solent River and the formation of Poole and Christchurch bays', in K.E. Barber (ed), *Wessex and the Isle of Wight*. Quaternary Research Association Field Guide, 99–114.

Nicholls, R.J. and Webber, N.B. 1989 'Characteristics of shingle beaches with reference to Christchurch Bay, S. England', in B.L. Edge (ed.), *Proceedings of the 21st Coastal Engineering Conference, Malaga, Spain* , New York: American Society of Civil Engineers, 1922–36.

Nowell, D.A.G., 1998 'Structures affecting the coast around Lulworth Cove, Dorset, and syn-sedimentary Wealden faulting', *Proceedings of the Geologists' Association* **108**, 257–68.

Nunny, R.S., 1995 *Lyme Bay Environmental Study, Vol. 1 Hydrography, Vol. 2 Sediments*, Project Report by Ambios Environmental Consultants Ltd. for Kerr McGee Oil (UK) plc., London.

Pearce, S., 2004 *Poole Harbour Bathymetric Monitoring Report: a study into the changes in depth and alignment of the channels and general bathymetry of the harbour*. Unpublished MRes thesis, University of Southampton.

Poole, G., 1987 'The coastal landforms of Central South England – a critical review', *Proceedings of the Dorset Natural History and Archaeological Society* **109**, 117–20.

Pingree, R.D., 1978 'The formation of the Shambles and other banks by tidal stirring of the seas', *Journal of Marine Biology Association* **58**, 211–26.

Plint, A.G., 1983 'Facies, environments and sedimentary cycles in the Middle Eocene Bracklesham Formation of the Hampshire Basin: evidence for global sea level changes?' *Sedimentology* 30, 625–53.

Prestwich, J., 1875 'Notes on the phenomena of the Quaternary period in the Isle of Portland and around Weymouth', *Quarterly Journal of the Geological Society* **31**, 29–54

Prestwich, J., 1892 'The raised beaches and "Head" or rubble-drift of the south of England', *Quarterly Journal of the Geological Society* **62**, 132–64.

Ranwell, D.S., 1967 'World resources of *Spartina townsendii* (*s.l.*) and economic use of *Spartina* marshland', *Journal of Ecology* **52**, 95–105.

Raybould, A., 2006 'History and ecology of *Spartina anglica* in Poole Harbour', in J. Humphreys, and V. May (eds), *Ecology of Poole Harbour*. London: Elsevier, 71–90.

Robinson, A.H.W., 1955 'The harbour entrances of Poole, Christchurch and Pagham', *Geographical Journal* **121**, 33–50.

Rosser, N.J., Petley, D.N., Lim, M., Dunning, S.A. and Allison, R.J., 2005 'Terrestrial laser scanning for monitoring the process of hard rock coastal cliff erosion', *Quarterly Journal of Engineering Geology and Hydrogeology* **38**, 363–376.

Royal Haskoning, 2004 *Poole Harbour Approach Channel Deepening and Beneficial Use of Dredged Material: Environmental Statement*. Report to Borough of Poole and Poole Harbour Commissioners.

Sealy, K. R., 1955 'The terraces of the Salisbury Avon', *Geographical Journal* **121**, 350–56.

Small, R.J., 1970 *A Study of Landforms*, Cambridge: Cambridge University Press.

Sparks, B.W., 1951 'Two drainage diversions in Dorset', *Geography* **36**, 186–93.

Sparks, B.W., 1953 'Stages in the physical evolution of the Weymouth lowland', *Transactions, Institute of British Geographers* **18**, 17–29.

Sperling, C.H.B., Goudie, A.S., Stoddart, D.R. and Poole, G.G., 1977 'Dolines of the Dorset Chalklands and Other Areas in Southern Britain', *Transactions of the Institute of British Geographers* New Series, **2**, 205–23.

Summerfield, M.A. and Goudie, A.S., 1980 'The sarsens of southern England: their palaeoenvironmental interpretation with reference to other silcretes', in D.K.C. Jones (ed.), *The Shaping of Southern England*, Institute of British Geographers, Special Publication **11**, 71–100.

Turner, N., 1990 'Sand transport on the seabed in Poole and Christchurch Bays', in *Poole Bay: a natural resource*, Marine Committee: Dorset Trust for Nature Conservation, 5–10.

Tyhurst M.F., 1976 *Seabed Drifter Work in Poole Bay: a study of ten years of research*. Internal paper, Engineers' Department, Borough of Bournemouth.

Tyhurst, M.F. and Hinton, M.T., 2004 *The evolution of Poole and Christchurch Bays: another look at the Flandrian Transgression*. Available at: http://www.dorsetforyou.com/media/pdf/o/0/evoluc.pdf [Accessed 26 November 2007]

UNESCO, 2007 *World Heritage List: Dorset and East Devon Coast*. Available at http://whc.unesco.org/en/list/1029 [Accessed 19 November 2007]

Velegrakis, A.F., 1994 *Aspects of the Morphology and Sedimentology of a Transgressional Embayment System: Poole and Christchurch Bays, Southern England*. Unpublished PhD thesis, University of Southampton.

Velegrakis, A.F., Dix, J.K. and Collins, M.B., 1999 'Late Quaternary evolution of the upper reaches of the Solent River, Southern England, based on marine geophysical evidence', *Journal of the Geological Society of London* **156**, 73–87.

Velegrakis, A.F., Dix, J.K. and Collins, M.B., 2000 'Late Pleistocene/Holocene evolution of the upstream section of the Solent River', in M. Collins and K. Ansell (eds), *Solent Science – a review*. Oxford: Elsevier, 97–100.

Waller, M.P. and Long, A.J., 2003 'Holocene coastal evolution and sea-level change on the southern coast of England: a review', *Journal of Quaternary Science* **18**, 351–59

Waltham, A.C., Simms, M.J., Farrant, A.R. and Goldie, H.S.,1997 *Karst and Caves of Great Britain*. Geological Conservation Review Series No. 12, Peterborough: Joint Nature Conservation Committee.

Waton, P.V. and Barber, K.E., 1987 'Rimsmoor, Dorset: biostratigraphy and chronology of an infilled doline', in K.E. Barber (ed.), *Wessex and the Isle of Wight - Field Guide*, Cambridge: Quaternary Research Association, 75–80.

Wayland, E.J., 1934 'Peneplains and some erosional platforms', *Geological Survey of Uganda, Annual Report Bulletin* Kampala: Geological Survey of Uganda, 77–79.

Westaway, R., Bridgland, D. and White, M., 2006 'The Quaternary uplift history of central southern England: evidence from the terraces of the Solent River system and nearby raised beaches', *Quaternary Science Reviews* **25**, 2212–50.

Whiteman, C. and Haggart, A., in press *Quaternary of Southern England*. Geological Conservation Review Series, Peterborough: Joint Nature Conservation Committee.

Wilson, K., 1960 'The time factor in the development of dune soils at South Haven Peninsula, Dorset', *Journal of Ecology* **48,** 341–59.

Wooldridge, S.W. and Linton, D.L., 1955 *Structure, Surface and Drainage in South-east England.* London: George Philip & Son.

Wright, P., 1982 *Aspects of coastal dynamics of Poole and Christchurch bays.* Unpublished PhD thesis, University of Southampton.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 163–174

Population structure and secondary production of the ragworm *Hediste (Nereis) diversicolor* in Poole Harbour, UK

S.E.A. LE V. DIT DURELL[1], R.W.G. CALDOW[1], S. MCGRORTY[1], A.D. WEST[1], R.A. STILLMAN[1] and J. HUMPHREYS[2]*

[1] Centre for Ecology and Hydrology (CEH) Dorset, Winfrith Technology Centre, Dorchester, Dorset DT2 8ZD, UK

[2] Vice Chancellor's Office, University of Greenwich, Old Royal Naval College, Greenwich, London SE10 9LS, UK

* Corresponding author: tel: 01202 849 769, email: J.Humphreys@gre.ac.uk

Summary

The population structure and secondary production of Hediste (Nereis) diversicolor *in Poole Harbour is reported. Thirteen monthly samples taken from November 2002 reveal a mean annual density of 2524 ± 266m^{-2}, with a maximum in November 2003 of 4077 ± 624m^{-2} and a minimum in July of 1410 ± 146m^{-2}. Mean annual biomass was 23.5 ± 1.4g AFDM m^{-2}, with a maximum in November 2002 of 36.4 ± 4.0g AFDM m^{-2}, and a minimum in June of 16.4 ± 1.6g AFDM m^{-2}. There were three peaks of recruitment: March/April, August and September/October. Lower fecundity spring recruitment was compensated by the benefits of faster growth and lower mortality during the summer months whilst more prolific late spawning was countered by slower growth and higher mortality during the winter. Annual secondary production was estimated at 19.4g AFDM m.*

Key words: *Hediste (Nereis) diversicolor*, Poole harbour, population structure, secondary production, shorebird predation, dredging disturbance

Introduction

The ragworm *Hediste (Nereis) diversicolor* (O.F. Müller, 1776) is one of the most abundant and widespread macroinvertebrates of North Atlantic intertidal mudflats (Scaps 2002). It is a key species in estuarine food webs, both as a predator and as a prey item for several species of invertebrates, fish and many shorebirds (Evans *et al.* 1984; Zwarts and Wanink 1993; Arias and Drake 1995).

Previous studies of *Hediste diversicolor* population dynamics have shown considerable variation in life history and production across its range in western Europe (Chambers and Milne 1975; Heip and Herman 1979; Kristensen 1984; Humphreys 1985; Arias and Drake 1995; Nithart 1998; Abrantes *et al.* 1999; Garcia-Arberas and Rallo 2002; Gillet and Torresani 2003). This study formed part of a programme of research focused on the benthos of Poole Harbour and its significance in the food web (Jensen *et al.* 2004; Caldow *et al.* 2005; 2007; Durell 2006, Humphreys *et al.* 2007).

Poole Harbour's position on the south coast of England, along with its unique combination of physical characteristics, make it notable as a natural environment of considerable interest. It is recognised for internationally significant bird populations and, being on a bio-geographical boundary, as a haven for the naturalisation of exotic species (Underhill-Day and Dyrynda 2005). The harbour is large, covering some 3,600 ha, but with an entrance only 370m wide. The tidal regime is peculiar in combining low amplitude (around 1.8m on the spring tides and 0.6m on neaps) with a prolonged 'double' high water, which sustains heights above mean tide level for around 16 out of every 24 h and gives the harbour a lagoon-like character (Humphreys 2005). Poole Harbour is also of interest because of the extent to which it represents in microcosm the world-wide tensions between environment and development (Humphreys and May 2005): to the south and west of the harbour are areas of unspoilt natural heathland and rural landscapes, while the north and east coasts are urban in character. These features ensure that the harbour's natural resources are intensively exploited, not least the ragworm population, which in addition to natural predation is subject to intensive bait digging activity and suffers from considerable sediment disturbance as a consequence of the local 'pump-scoop' dredging technique used for cockle and clam fishing (Parker and Pinn 2005).

Methods

Study area

The study area was a mudflat at the western end of Poole Harbour, between Holton Heath and the Wareham Channel, being some 8km from the harbour mouth and approximately 2km from the main freshwater input into the harbour from the rivers Piddle and Frome (Fig. 1). The environment is estuarine with a maximum overlying water salinity of 30 (Humphreys 2005). *Hediste diversicolor* is the numerically predominant macrobenthic invertebrate found in this part of Poole Harbour, with the only other frequently occurring species being *Hydrobia ulvae*, *Corophium volutator* and an introduced population of the manila clam *Tapes philipinarium* (Jensen *et al.* 2004; Thomas *et al.* 2004; Humphreys *et al.* 2007). Within this area an homogeneous study site of 250m by 250m was established (50% fine silt, median particle size <20μm). The site lies 1.1m above the lowest astronomical tide and was

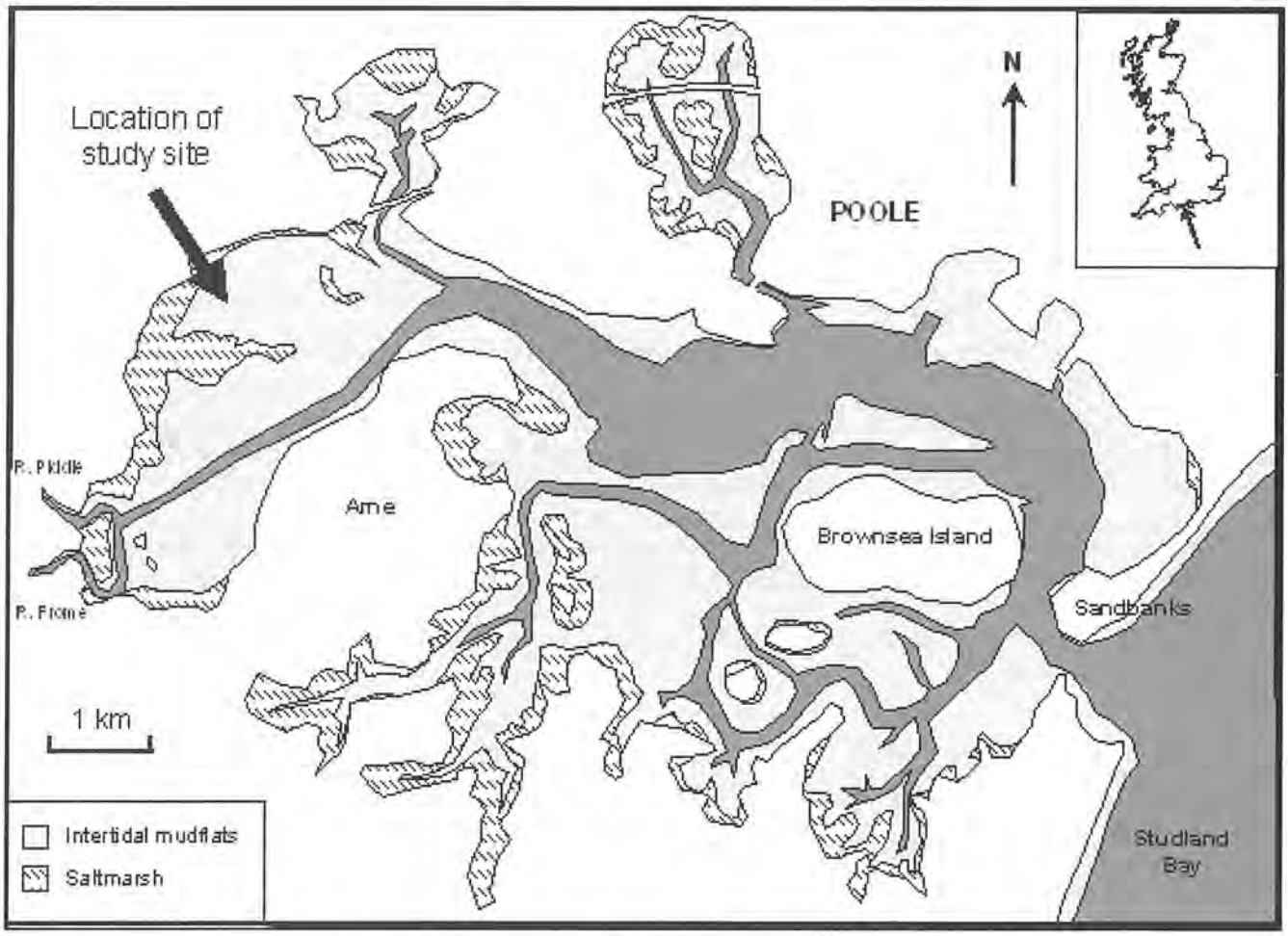


Figure 1: Poole Harbour, showing the location of the study site

exposed for approximately 200 min per tide on an extreme spring tide and not at all on an extreme neap tide (Thomas *et al.* 2004).

Sampling and measurement

Each month, from November 2002 until November 2003, 10 different sampling stations were selected using computer generated random co-ordinates and located by hand-held GPS. At each station, a 10cm diameter sediment core was removed with a steel coring pipe to a depth of 30cm. Samples were sieved in sea water soon after collection using a 0.5mm nylon mesh sieve. The sieved contents were fixed in 4% formalin (formaldehyde) in seawater for a period of approximately two weeks and then washed in freshwater and preserved in 70% alcohol. Samples were washed in the laboratory through a 0.5mm sieve to remove residual sediment and ragworms were removed and worm length measured to 0.1mm under a low-power binocular microscope. In addition, mandible length was measured in all whole worms in November 2002, March 2003 and July 2003 to calculate the relationship between mandible length and preserved worm length. This relationship was used to calculate the length of broken worms (heads only).

Separate worm samples were taken each month for ash free dry mass (AFDM) analysis. Fresh relaxed body length was measured immediately after sampling and the worms kept frozen separately in small labelled plastic bags before processing. The contents of each plastic bag were washed into a crucible, dried to constant mass at 90°C, weighed, burnt to constant mass in a muffle furnace at 550°C and then reweighed. The loss of weight on burning (dry weight–ash weight) is the AFDM.

Biomass was calculated for each month as the product of the density of worms within a 1mm size class and the predicted AFDM for that size class in that month. The AFDM for each 1mm size class was calculated by converting preserved length to live relaxed length using the equation:

$$\text{Preserved length} = -0.7115 + 0.8178(\text{Live relaxed length}) \quad 1.$$

The AFDM of each worm was then calculated using the relationship between ($\log_e$) AFDM and ($\log_e$) live relaxed worm length for that month.

Data analysis

Monthly size distribution histograms (i = 2mm) were plotted from preserved worm length measurements and cohorts determined, after Bhattacharya

(1967), using MIX software (Macdonald and Green 1988). This method reveals several Gaussian groups and allows the parameters for each group to be calculated, i.e. the estimated number in each group, their mean size and the standard deviation. Each Gaussian group was interpreted as representing a different recruitment event, or cohort, and each cohort was followed through from one month to the next.

Annual secondary production was calculated as the sum for all cohorts of the product of the mean population density of each cohort at time t and time $t+1$ and the corresponding individual mean weight increments between successive sampling events as described by Crisp (1984). Weight losses (negative increments) were not subtracted, since production is defined as the addition of somatic and gonadal tissue to the population regardless of whether or not it accumulates and survives to the end of the period under consideration (Banse and Mosher 1980).

Results

Population density and biomass

The annual mean density of *Hediste diversicolor* in the study site was 2524 ± 266m^{-2}, with a maximum in November 2003 of 4077 ± 624 m^{-2} and a minimum in July of 1410 ± 146m^{-2} (Fig. 2). Significant increases in worm densities were due to the recruitment of large numbers of small worms (<5mm) in late summer and autumn (August–October) and, to a lesser extent, in spring (March–April). The annual mean biomass was 23.5 ± 1.4g AFDM m^{-2}, with a maximum in November 2002 of 36.4 ± 4.0g AFDM m^{-2}, and a minimum in June of 16.4 ± 1.6g AFDM m^{-2} (Fig. 2). The decline in biomass from November to June can be attributed partly to a decline in numerical density, but also to a decline in body condition among adult worms throughout this period (Fig. 3).

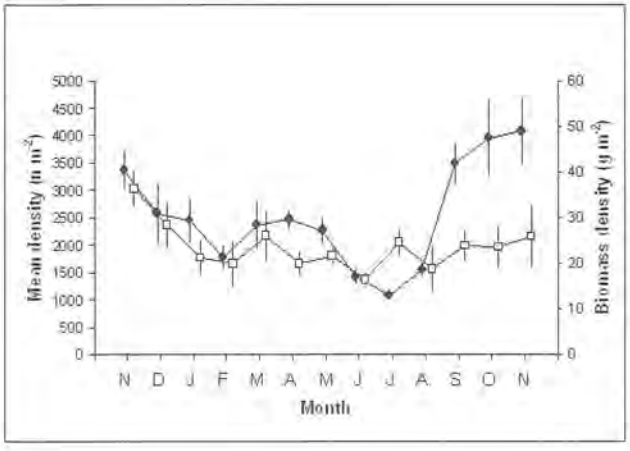


Figure 2: Variation in numerical density (closed circles) and biomass density (open squares) of Hediste diversicolor *over time. Error bars show 1se*

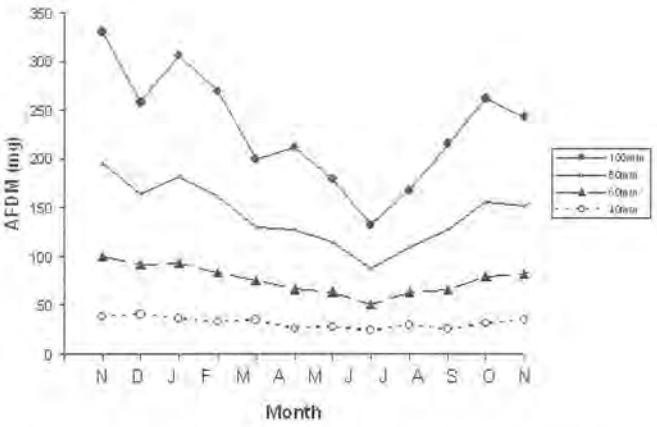


Figure 3: Seasonal variation in the predicted AFDM of Hediste diversicolor *with preserved lengths of 40, 60, 80 and 100mm*

Population structure, growth and mortality

In November 2002, six cohorts were identified within the population (Fig. 4a). These six cohorts were interpreted as arising from three recruitment peaks in 2002 (2002a, b, c) and three recruitment peaks in the previous year (2001a, b, c). This interpretation is consistent with the three recruitment peaks observed in 2003, i.e. in March–April (Fig. 4e, f), in August (Fig. 4j) and in September–October (Fig. 4k, l). It follows from this that no cohorts were more than 24 months old (Table 1) (Fig. 5), although the occasional large worm (>100mm preserved length) sampled may have been a survivor from an older cohort.

Very little growth occurred during the winter months in any of the cohorts present, with most growth occurring from March to October (Fig. 5). The mean rate of growth for worms >10mm long was 2.89 ± 0.5mm per month (Table 1). With cohorts combined, time of recruitment (season) had a significant effect on worm length for a given age (partial $t_{3,73} = -5.50$, $P < 0.0001$) (Fig. 6a). Worms that were recruited in the spring grew faster than worms recruited in late summer which, in turn, grew faster than worms recruited in the autumn.

There was also a recruitment season effect on worm mortality in the first year of life. Higher numbers were recruited in the autumn than in the spring but by the time cohorts were 12 months old there was little difference in their densities (Fig. 6b). Using a general linear model of ($\log_e$) worm density and age, including recruitment season, there was a significant difference between seasons in the first 12 months of life in both the intercepts ($F_{2,30} = 14.79$, $P < 0.0001$) and the slopes ($F_{2,30} = 5.93$, $P = 0.007$) of the relationship. Worms recruited in autumn had higher first-year mortality than those recruited in late summer which, in turn, had higher mortality than those recruited in the spring. Estimated mortalities for the first year of life were: spring recruitment 64.6%, late summer recruitment 75.5% and autumn recruitment 84.3%.

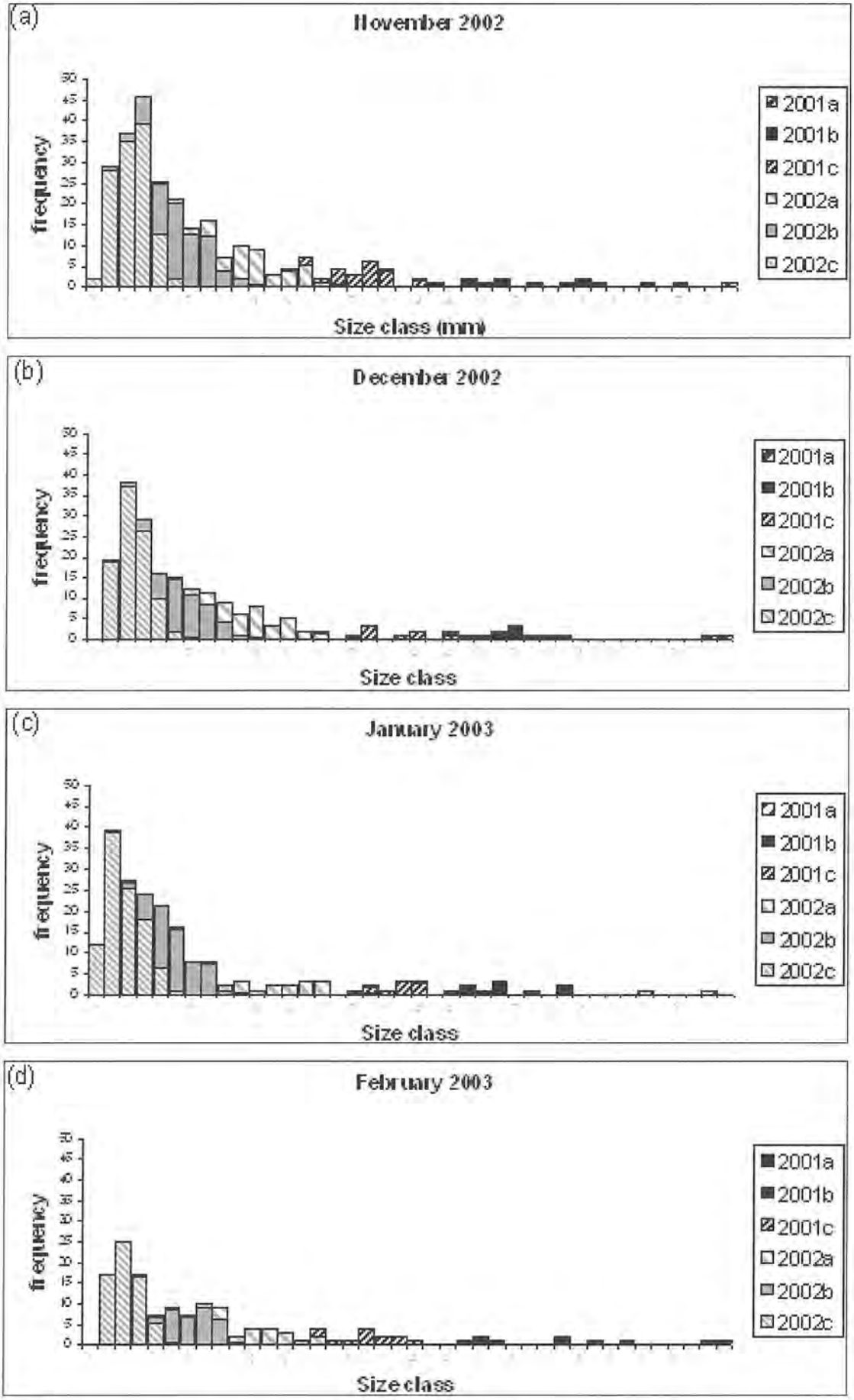


Figure 4: Hediste diversicolor *preserved worm length distributions from November 2002 until November 2003 showing 3 cohorts (a, b, c) identified within each recruitment year (2001, 2002, 2003)*

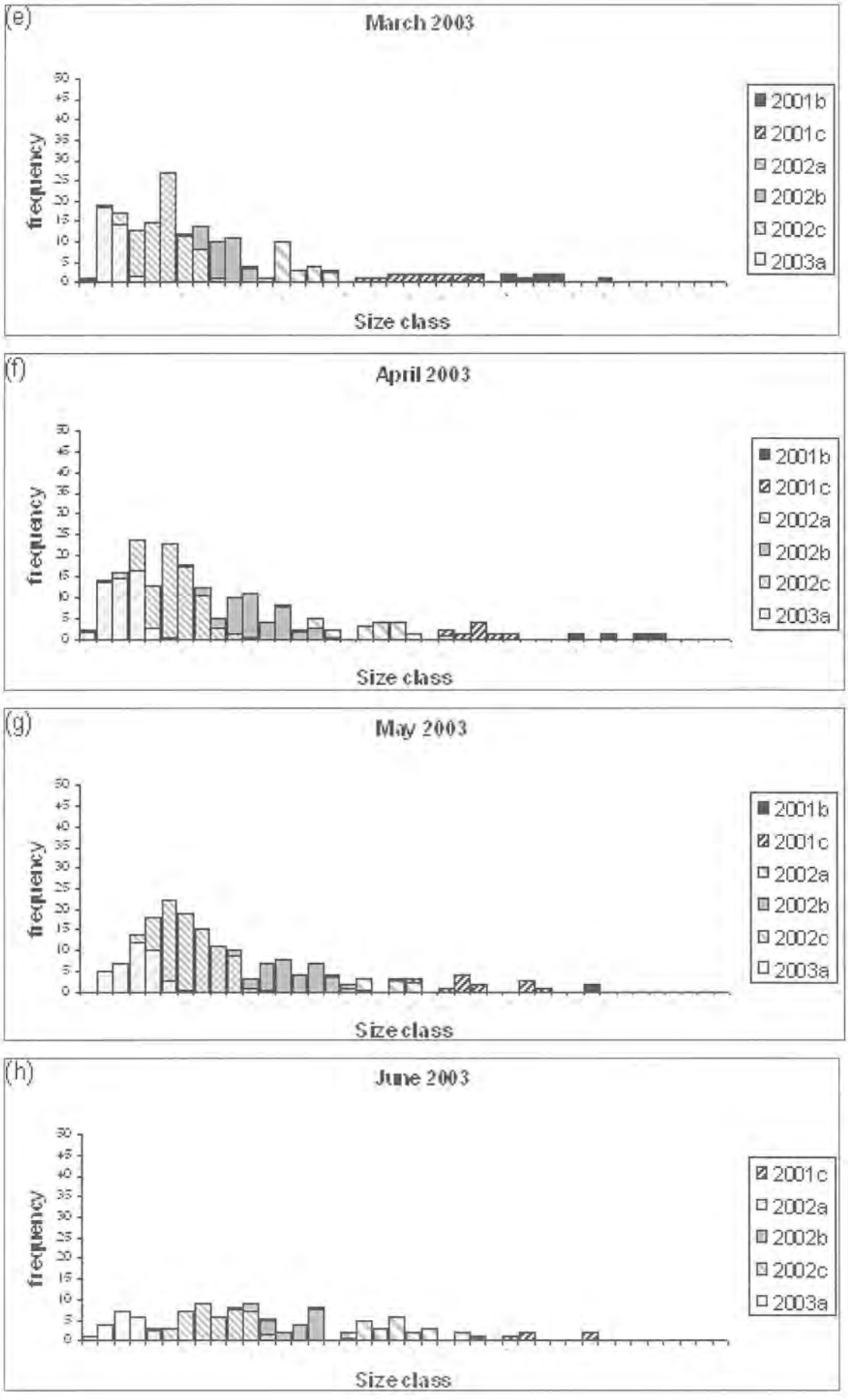
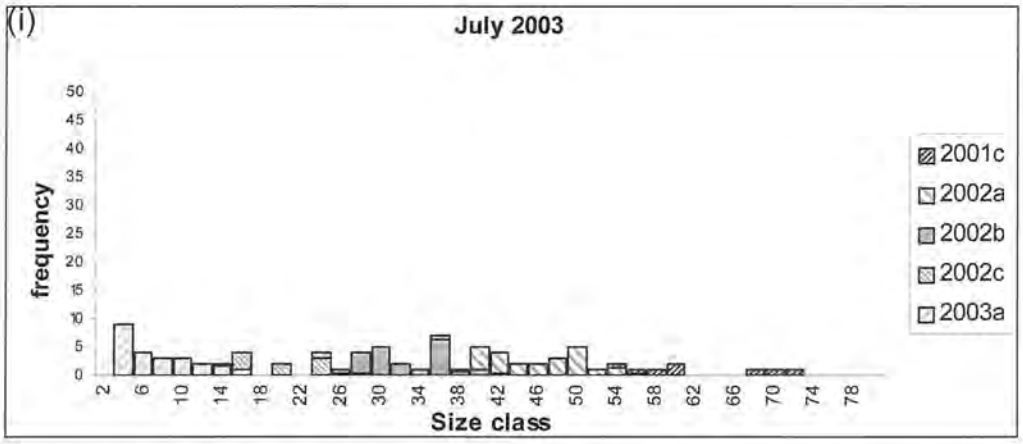
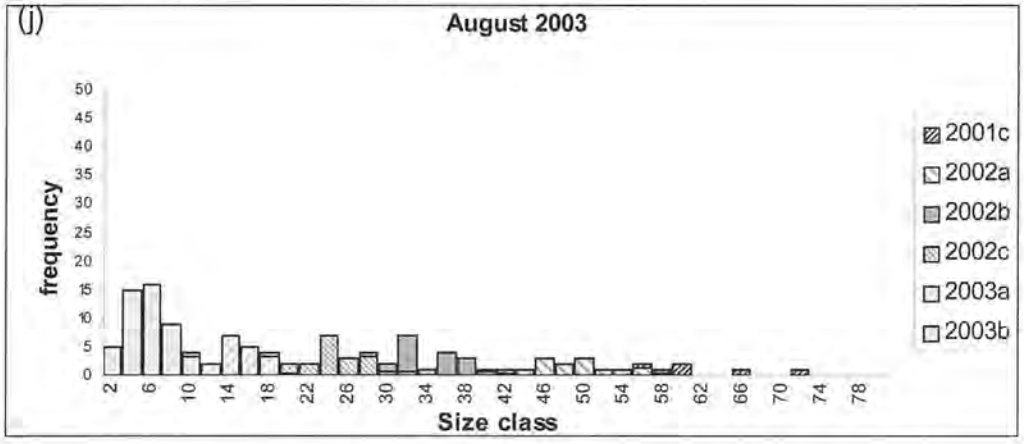
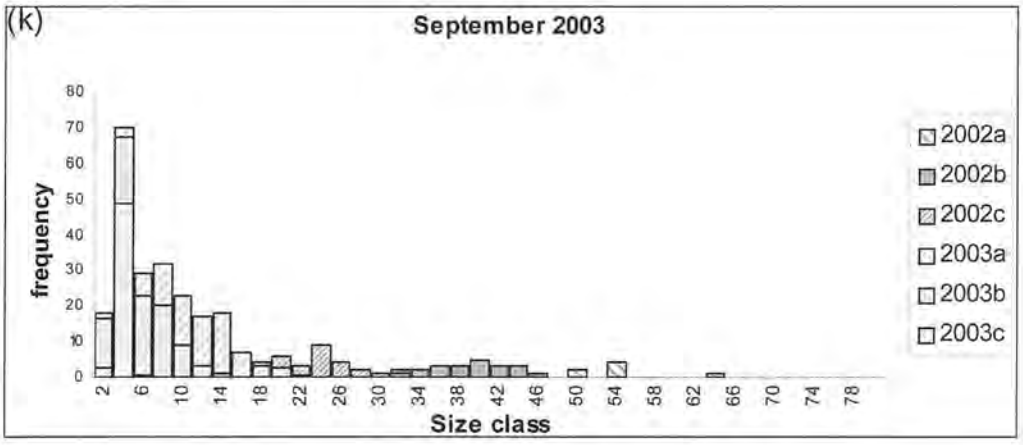


Figure 4: (cont'd)







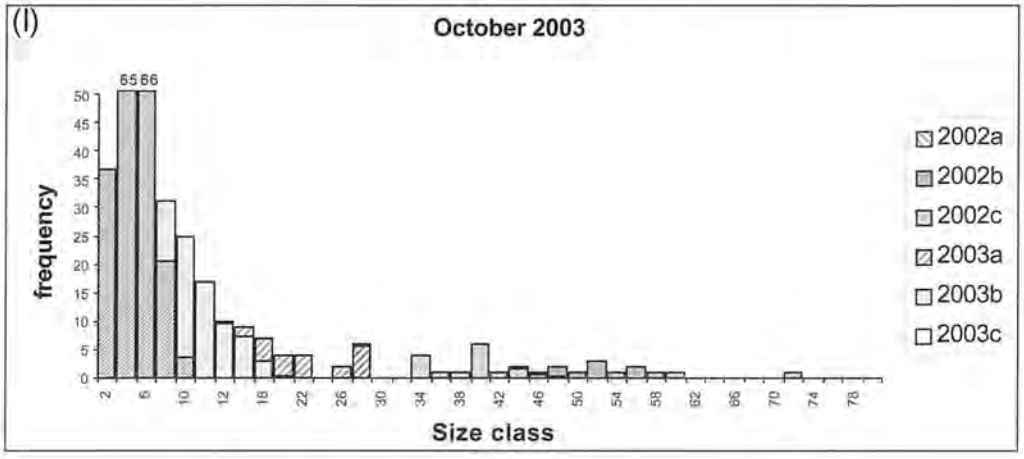


Figure 4: (cont'd)

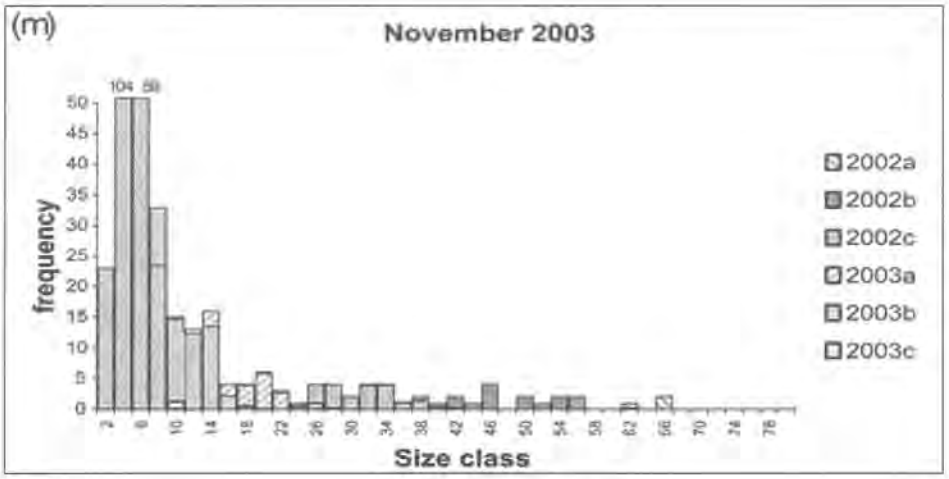


Figure 4: (cont'd)

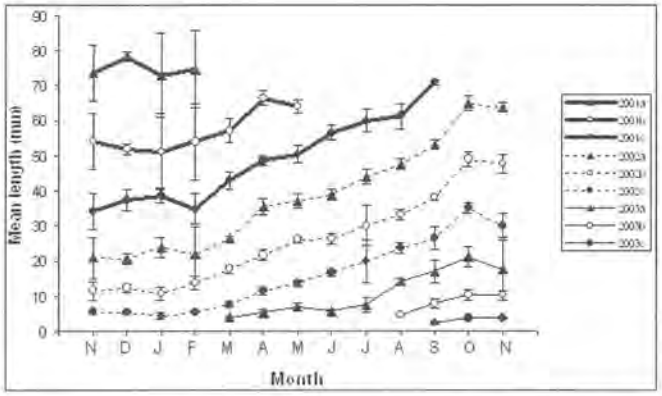


Figure 5: Growth plots of Hediste diversicolor *cohorts from November 2002 to November 2003*

With cohorts that were over 12 months old, there was no significant difference between seasons in the slope ($F_{2,31} = 1.06, P = 0.36$) or the intercept ($F_{2,31} = 2.00, P = 0.153$) of the relationship between ($\log_e$) worm density and age. This indicates that, in their second year of life, there was no discernible effect of recruitment season on worm density or mortality. Estimated mortality in the second year of life was 85%.

Production

The total annual production for the year November 2002 to November 2003 was 19.36g m^{-2} (Table 1). With a mean annual biomass of 23.5g m^{-2} this gives a P/B (production to biomass) ratio for this population of 0.82.

Discussion

Annual Production measured as ash-free dry mass (AFDM) is an estimate of the growth of organic matter which is available as food within the ecosystem. In the same mud flat Manila clam (*Tapes philippinarum*) annual production is 13.57g AFDM m^{-2} (Humphreys *et al.* 2007) significantly below that of the ragworm. These figures when considered also in relation to the much lower biomass of the only two other abundant species in

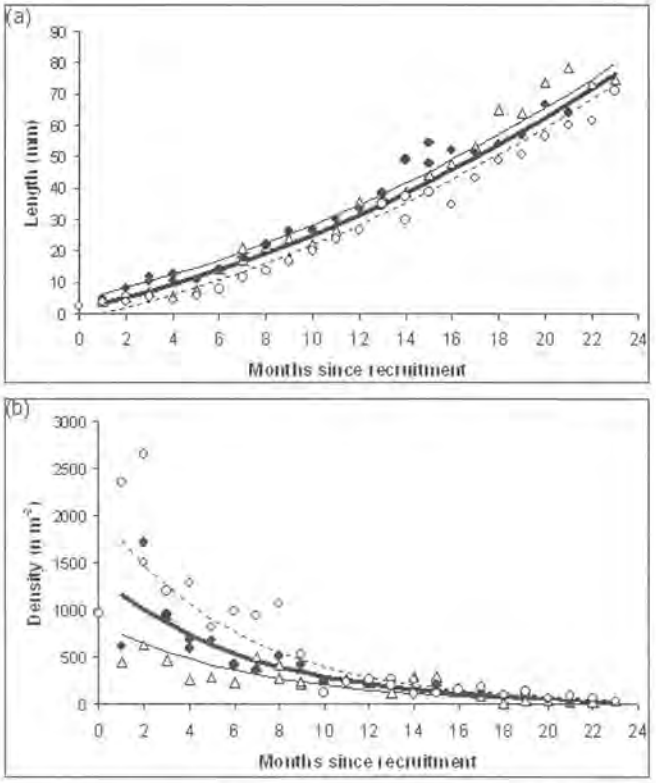


Figure 6: The effect of age and season on a) growth and b) density. Lines show predicted values for spring (solid triangles, thin line), late summer (open circles, thick line) and autumn (solid circles, dashed line) recruitment

the area (*Corpohium volutator* and *Hydrobae ulvae* (Caldow *et al.* 2005)) indicate the primary importance of *Hediste diversicolor* as a prey item for overwintering wader populations at this site in Poole Harbour.

The reproductive cycle of *Hediste diversicolor* can vary from a single spawning season (sometimes very short) in spring or summer, an extended spawning season with one or two spawning peaks, or spawning throughout the whole year (Scaps 2002). However, the most common pattern is two peaks of spawning, in spring and autumn (Table 2). In Poole Harbour, we found three peaks of recruitment, in spring, late sum-

Table 1a: Growth and production of cohorts 2001a, b, c and 2002a, b from November 2002 to November 2003

Cohort	Month	Density (n m^{-2})	Mean length (mm)	Length increment (mm)	Mean growth (mm $mnth^{-1}$)	Mean mass (mg AFDM)	Mass increment (mg AFDM)	Mean density (n m^{-2})	Production (g m^{-2})	Cohort production (gm^{-2})
2001a	Nov	36.3	73.6			36.90				
	Dec	25.4	78.3	4.7		40.75	3.84	30.8	0.119	
	Jan	25.3	73.0	–5.3		31.76	–8.98	25.4	0.000	
	Feb	38.4	74.6	1.6	0.3	30.05	–1.72	31.9	0.000	0.119
2001b	Nov	140.9	54.3			18.77				
	Dec	139.7	51.9	–2.4		18.73	–0.04	140.3	0.000	
	Jan	126.1	51.2	–0.7		14.66	–4.06	132.9	0.000	
	Feb	92.6	54.0	2.8		14.93	0.27	109.4	0.029	
	Mar	98.9	67.0	3.0		20.32	5.39	95.8	0.516	
	Apr	50.8	66.4	9.4		19.00	–1.32	74.9	0.000	
	May	25.4	64.0	–2.4	1.6	18.53	–0.47	38.1	0.000	0.545
2001c	Nov	217.2	34.2			6.51				
	Dec	109.5	37.3	3.1		9.86	3.35	190.3	0.638	
	Jan	115.1	38.7	1.4		7.77	–2.09	112.3	0.000	
	Feb	156.1	34.8	–3.9		5.89	–1.88	135.6	0.000	
	Mar	183.6	43.0	8.2		12.24	6.35	169.9	1.078	
	Apr	105.2	48.7	5.7		9.80	–2.43	144.4	0.000	
	May	139.7	50.5	1.8		11.72	1.92	122.5	0.235	
	June	72.2	56.6	6.1		14.12	2.40	106.0	0.254	
	July	97.2	60.0	3.4		19.21	5.10	84.7	0.432	
	Aug	69.4	61.3	1.3		14.78	–4.44	83.3	0.000	
	Sep	38.1	71.0	9.7	3.7	25.41	10.63	53.8	0.572	3.208
2002a	Nov	504.9	20.9			2.38				
	Dec	421.1	20.7	–0.2		3.99	1.01	463.0	0.468	
	Jan	215.9	23.9	3.2		2.96	–0.43	318.5	0.000	
	Feb	254.0	21.9	–2.0		2.33	–0.63	234.9	0.000	
	Mar	272.9	26.5	4.6		5.12	2.79	236.4	0.734	
	Apr	222.8	35.5	9.0		5.22	0.10	247.8	0.024	
	May	126.6	37.1	1.6		6.66	1.44	174.7	0.251	
	June	295.3	38.8	1.7		7.03	0.37	211.0	0.079	
	July	297.3	44.0	5.2		10.76	3.73	296.3	1.104	
	Aug	173.6	47.8	3.8		8.49	–2.26	235.5	0.000	
	Sep	88.9	53.2	5.4		13.54	5.05	131.3	0.663	
	Oct	12.7	65.0	11.8		28.96	15.41	50.8	0.783	
	Nov	38.1	63.9	–1.1	3.6	25.18	–3.78	25.4	0.000	4.107
2002b	Nov	900.4	20.9			0.76				
	Dec	594.4	20.7	–0.2		1.45	0.69	747.4	0.513	
	Jan	682.0	23.9	3.2		0.63	-0.82	638.2	0.000	
	Feb	420.8	21.9	–2.0		0.91	0.28	551.4	0.156	
	Mar	365.0	26.5	4.6		2.61	1.70	392.9	0.666	
	Apr	516.1	35.5	9.0		1.87	–0.74	440.8	0.000	
	May	421.8	37.1	1.6		3.52	1.65	469.2	0.774	
	June	254.7	38.8	1.7		3.59	0.07	333.7	0.024	
	July	259.0	44.0	5.2		5.74	2.14	252.3	0.541	
	Aug	220.0	47.8	3.8		3.89	–1.85	293.5	0.000	
	Sep	266.7	53.2	5.4		6.61	2.27	243.4	0.662	
	Oct	139.7	65.0	11.8		15.66	9.05	203.2	1.838	
	Nov	203.2	63.9	–1.1	3.6	13.26	–2.39	171.5	0.000	5.175

Table 1b: Growth and production of cohorts 2002c and 2003a, b, c and total annual production from November 2002 to November 2003

Cohort	Month	Density (n m^{-2})	Mean length (mm)	Length increment (mm)	Mean growth (mm $mnth^{-1}$)	Mean mass (mg AFDM)	Mass increment (mg AFDM)	Mean density (n m^{-2})	Production (g m^{-2})	Cohort production (gm^{-2})
2002c	Nov	1511.8	5.6			0.23				
	Dec	1199.3	5.4	–0.2		0.47	0.24	1355.6	0.326	
	Jan	1286.5	4.4	–1.0		0.16	–0.31	1242.9	0.000	
	Feb	816.2	5.5	1.1		0.20	0.04	1051.4	0.037	
	Mar	991.2	7.6	2.1		1.18	0.99	903.7	0.892	
	Apr	938.0	11.5	3.9		0.57	–0.62	964.6	0.000	
	May	1068.6	13.6	2.1		1.16	0.60	1003.3	0.598	
	June	532.5	16.7	3.1		1.74	0.57	800.5	0.460	
	July	127.0	20.0	3.3		2.53	0.79	329.7	0.259	
	Aug	236.8	23.7	3.7		1.92	–0.60	181.9	0.000	
	Sep	266.7	26.5	2.8		2.28	0.36	251.7	0.091	
	Oct	203.2	35.0	8.5		8.39	6.10	235.0	1.434	
	Nov	254.0	29.9	–5.1	2.0	5.34	–3.04	228.6	0.000	4.097
2003a	Mar	450.5	4.0			0.34				
	Apr	630.4	5.2	1.2		0.16	–0.18	540.5	0.000	
	May	470.0	7.0	1.8		0.42	0.26	550.2	0.141	
	June	264.0	5.6	–1.4		0.37	–0.05	376.0	0.000	
	July	292.1	7.5	1.9		0.58	0.21	278.1	0.059	
	Aug	233.0	14.1	6.6		0.65	0.07	262.5	0.018	
	Sep	393.7	17.0	2.9		0.53	–0.12	313.3	0.000	
	Oct	279.4	21.2	4.2		2.83	2.30	336.6	0.774	
	Nov	241.3	17.8	–3.4	1.7	1.99	–0.84	260.4	0.000	0.992
2003b	Aug	616.6	4.6			0.11				
	Sep	1714.5	7.9	3.3		0.18	0.07	1165.6	0.076	
	Oct	952.5	10.3	2.4		0.80	0.62	1333.5	0.827	
	Nov	685.8	10.3	0.0	1.9	0.76	–0.04	819.2	0.000	0.903
2003c	Sep	965.2	2.4			0.07				
	Oct	2362.2	3.8	1.4		0.20	0.13	1663.7	0.220	
	Nov	2654.3	3.8	0.0	0.7	0.18	–0.02	2508.3	0.000	0.220
									Annual production	19.365

mer and autumn. These three distinct groups differed in initial density, growth rate and mortality rates in their first year of life. Autumn spawning was far more prolific than the spring, but worms recruited in the autumn had slower first-year growth and higher mortality than those recruited in the spring. Worms recruited in late summer had intermediate values of all three parameters. It would appear that lower fecundity spring recruitment is compensated by the benefits of faster growth and lower mortality during the summer months while more prolific late spawning is countered by slower growth and higher mortality during the winter.

In most respects, the population parameters of *Hediste diversicolor* in Poole Harbour were within the range found elsewhere (Table 2). Biomass in our study site was high, but we had chosen the site specifically for its high worm densities. However, annual production was not very high, particularly in relation to biomass. Consequently, the P/B ratio for this site is the lowest reported so far for this species (Table 2). This is especially noteworthy in light of the sustained high tides of Poole Harbour which might be expected to provide more time for feeding.

There is a general trend for the P/B ratio to be higher in lower latitudes, which is attributed to faster growth rates in warmer environments (Abrantes *et al.* 1999; García-Arberas and Rallo 2002; Scaps 2002). However, this trend is solely due to the difference between sites in the southern Iberian peninsula and Morocco and all other sites further north (Fig. 7). Among the more northerly sites, there is no trend in the P/B ratio with latitude, suggesting other factors affecting P/B.

Table 2: Comparison of *Hediste diversicolor* population parameters recorded in the literature

Location	Latitude °N	Recruitment months	Lifespan (years)	Density (n m^{-2}) Mean	Density (n m^{-2}) Range	Biomass (g m^{-2}) Mean	Biomass (g m^{-2}) Range	Production (g m^{-2} a^{-1})	P/B	Reference
1. Ythan (UK)	57.4	Jan–Mar, Jun–Aug	1.5	495	208–961	4.2	1.6–11.5	12.8	3	Chambers & Milne (1975)
2. Norsminde (Denmark)	56.1	Mar–May, Jul–Aug	1 to 1.5	1305	50–3250	11.9	5.2–20.8	30.6	2.6	Kristensen (1984)
3. Stiffkey (UK)	53.0	June	>1	392	140–880	10.3	2.8–20.9	17.9	1.75	Nithart (1998)
4. Crouch (UK)	51.8	April	3	927	459–1296	13.1	4.8–21.5	12.2	0.93	Humphreys (1985)
5. Dievengat (Belgium)	51.2	May–Dec		9050	5000–1700	24	12.9–38.5	64.2	2.51	Heip & Herman (1979)
6. Poole (UK)	50.7	Mar–April, Aug–Nov	1.5 to 2	2524	1080–4077	23.5	16.4–36.4	19.4	0.83	This study
7a. Loire (France)	47.3	Jan–Feb, Aug–Sept	1 to 2	1708	800–3248	15.8	6.8–26.9	34.7	2.2	Gillet (1990)
7b. Loire (France)	47.3	June, October	1	900	304–2560	9.1	1.2–26.0	5.1, 34.4	1.1, 3.6	Gillet & Torresani (2003)
8. Gernika (Spain)	43.3	Mar–Aug, Sept–Feb	1.5 to 3	1060	173–3051	8.6	1.08–17.36	16.9	1.97	Garcia-Arberas & Rallo (2002)
9. Aveiro (Portugal)	40.4	Feb–May, Aug–Sept		718	400–1100	10.2		58	5.7	Abrantes *et al.* (1999)
10. Formosa (Portugal)	37.0	Feb	1.5 to 2			6.7	3.7–9.7	31.7	5.4	Sprung (1994)
11. Cadiz (Spain)	36.2	May–Jun, Nov–Dec		1886	653–2627	4.6	3.7–6.9	22.7	4.6	Arias & Drake (1995)
12. Bou Regreg (Morocco)	30.9	Apr–May, Sept–Oct	1 to 2	620	320–1008	15.4	5.4-27.2	66	4.3	Gillet (1993)

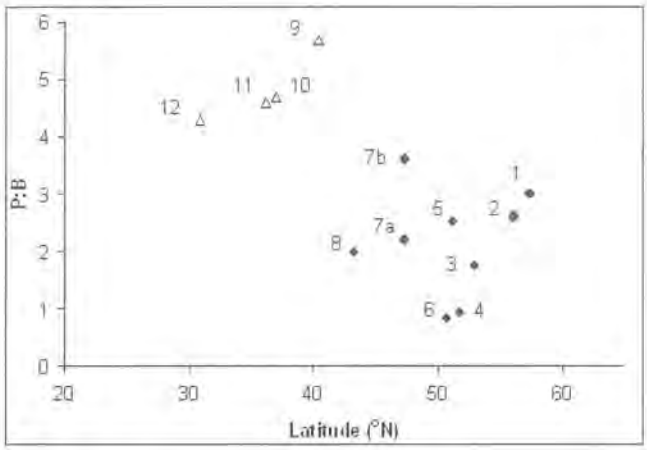


Figure 7: The relationship between P/B ratio and latitude using data and site reference numbers from Table 2. Open triangles = southern Iberia and Morocco, closed circles = sites further north

Robertson (1979) has shown an inverse correlation between lifespan and P/B due to the relatively slow growth rates of older individuals. However, the lifespan of the Poole Harbour *Hediste diversicolor* population is not unusually long and an explanation for the low P/B ratio in Poole Harbour must await further investigation.

Poole Harbour supports large numbers of overwintering shorebirds, many of which rely on *Hediste diversicolor* as their main source of food (Pickess and Underhill-Day 2002; Pollitt *et al.* 2003; Thomas *et al.* 2004). Total numbers of shorebirds overwintering in Poole Harbour exceed 17,500, including internationally important numbers of black-tailed godwits *Limosa limosa* (>1600), and nationally important numbers of dunlin *Calidris alpina* (>6000), curlew *Numenius arquata* (>1500) and redshank *Tringa totanus* (>1100) (Pickess and Underhill-Day 2002; Pollitt *et al.* 2003). The main food supply for all these shorebirds is larger size classes (>15mm) of *Hediste diversicolor* (Goss-Custard *et al.* 1977). From September to March, around 5000 shorebirds feed at low water on the mudflat where our study site was situated (Pickess and Underhill-Day 2002). Mortality among larger individuals of *Hediste diversicolor* is, to a significant extent, due to the high levels of predation by these shorebirds, some of which are known to discriminate in favour of larger size prey items (Humphreys *et al.* 2007).

Other causes of mortality in *Hediste diversicolor* may include clam dredging and bait digging. Our study site is dredged intensively for clams over an 8-week fishing season between October and December and is subject to illegal clam fishing at other times (Jensen *et al.* 2004). It is possible that clam fishing may affect worm production, through mortality or emigration of worms from the affected areas. Capture of worms for bait through digging and dredging is also commonplace in Poole Harbour. Further studies are needed to determine the size-dependent effects of predation and disturbance on *Hediste diversicolor* mortality, and the importance of the population for the over winter survival of the important wader populations.

BIBLIOGRAPHY

Abrantes, A., Pinto F. and Moreira M.H., 1999 'Ecology of the polychaete *Nereis diversicolor* in the Canal de Mira (Ria de Aveiro, Portugal): Population dynamics, production and oogenic cycle', *Acta Oecologia* **20**, 267–83.

Arias, A.M. and Drake, P., 1995 'Distribution and production of the polychaete *Nereis diversicolor* in a shallow coastal lagoon in the Bay of Cádiz (SW Spain)', *Cahiers de Biologia Marine* **36**, 201–10.

Banse, K. and Mosher S., 1980 'Adult body mass and annual production/biomass relationships of field populations', *Ecological Monographs* **50**, 355–79.

Bhattacharya, C.G., 1967 'A simple method of resolution of a distribution into Gaussian components', *Biometrics* **23**, 115–35.

Caldow R.W.G., McGrorty,, S., West S., Durell, S.E.A., Le V. dit, Stillman, R. and Anderson, S., 2005 'Macro-invertebrate fauna in the intertidal mudflats', in J. Humphreys and V. May, *The Ecology of Poole Harbour.* Amersterdam, Elsevier.

Caldow, R.W.G., Stillman, R.A., Durel, S.E.A. Le V dit., West, A.D., McGrorty, S., Goss-Custard, J.D., Wood, P.J. and Humphreys, J., 2007 'Benefits to shorebirds from invasion of non-mature shellfish', *Proceedings of the Royal Society B.* **274**, 1449–55.

Chambers, M.R. and Milne, H., 1975 'Life cycle and production of *Nereis diversicolor* O.F. Müller in the Ythean Estuary, Scotland', *Estuarine and Coastal Marine Science* **3**, 133–44.

Crisp, D.J., 1984 'Energy flow measurements', in N.A. Holme and A.D. McIntyre (eds), *Methods for the Study of Marine Benthos*, pp. 284–373. Oxford, Blackwell.

Durell, S.E.A., Le V. dit, Caldow, R.W.G., McGrorty, S., West, A.D. and Humphreys, J., 2006 'Modelling the effect of environmental change on shorebirds: a case study on Poole Harbour', *Biological Conservation* **131**, 459–73.

Evans, P.R., Goss Custard, J.D. and Hale, W.G. (eds), 1984 *Coastal Waders and Wildfowl in Winter.* Cambridge, Cambridge University Press.

Garcia-Arberas, L. and Rallo, A., 2002 'Life cycle, demography and secondary production of the Polychaete *Hediste diversicolor* in a non-polluted estuary in the Bay of Biscay', *Marine Ecology* **23**, 237–51.

Gillet, P., 1990 'Biomasse, production et dynamique des populations de *Nereis diversicolor* (annélide polychète) de l'estuaire de la Loire (France)', *Oceanologica Acta* **13**, 361–71.

Gillet, P., 1993 'Impact de l'implantation d'un barrage sur la dynamique des populations de *Nereis deversicolor* (Annelide Polychete) de l'estuaire du Bou Regreg, Maroc', *Journal de Recherche Oceanographique* **18**, 15–18.

Gillet, P. and Torresani, S., 2003 'Structure of the population and secondary production of *hediste diversicolor* (O.F. Müller, 1776), (Polychaeta, Nereidae) in the Loire estuary, Atlantic Coast, France', *Estuarine, Coastal and Shelf Science* **56**, 621–28.

Goss-Custard, J.D., Jones, R.E. and Newbury, P.E., 1977 'The ecology of the Wash. I. The distribution and diet of wading birds (Charadrii)', *Journal of Applied Ecology* **14**, 681–700.

Heip, C. and Herman, R., 1979 'Production of *Nereis diversicolor* O.F. Müller (Polychaeta) in a shallow brackish-water pond', *Estuarine and Coastal Marine Science* **8**, 297–305.

Humphreys, T.J., 1985 'Production of *Nereis diversicolor* in an upper estuarine creek', *Journal of Biological Education* **19**, 141–46.

Humphreys, J., 2005 'Salinity and tides in Poole Harbour: estuary or lagoon?', in Humphreys and May 2005, 35–48.

Humphreys, J. and May, V. (eds), 2005 *The Ecology of Poole Harbour.* Amsterdam, Elsevier.

Humphreys, J., Caldow, R.W.G., McGrorty, S., West, A.D. and Jenson, A.C., 2007 'Population dynamics of naturalised Manila Clams *Ruditapes philippinarum* in British coastal waters', *Marine Biology* **151** (6) 2255–70.

Jensen, A.C., Humphreys, J., Caldow, R.W.G., Grisley, C. and Dyrynda, P.E.J., 2004 'Naturalization of the Manila clam (*Tapes philippinarum*), an alien species, and establishment of a clam fishery within Poole Harbour, Dorset', *Journal of the Marine Biological Association of the UK* **84**, 1069–73.

Kristensen, E., 1984 'Life cycle, growth and production in estuarine

populations of the polychaetes *Nereis virens* and *N. diversicolor*', *Holarctic Ecology* **7**, 249–56.

Macdonald, P.D.M. and Green, P.E.J., 1988 *User's Guide to Program MIX: an interactive program for fitting mixtures of distributions*. Hamilton, Ontario, Ichthus Data Systems.

Nithart, M., 1998 'Population dynamics and secondary production of *Nereis diversicolor* in a north Norfolk saltmarsh (UK)', *Journal of the Marine Biological Association of the UK* **78**, 131–43.

Parker, L. and Pinn, E., 2005 'Ecological effects of pump-scoop dredging for cockles on the intertidal benthic community', in Humphreys and May 2005, 205–18.

Pickess, B.P. and Underhill-Day, J.C., 2002 *Important Birds of Poole Harbour*. Wareham, Poole Harbour Study Group.

Pollitt, M.S., Hall, C., Holloway, S.J., Hearn, R.D., Marshall, P.E., Musgrove, A.J., Robinson, J.A. and Cranswick, P.A., 2003 *The Wetland Bird Survey 2000–01: Wildfowl and Wader Counts*. Slimbridge, BTO/WWT/RSPB/JNCC.

Robertson, A.I., 1979 'The relationship between annual production:biomass ratios and lifespans for marine macrobenthos', *Oecologia* (Berl) **38**, 193–202.

Scaps, P., 2002 'A review of the biology, ecology and potential use of the ragworm *Hediste diversicolor* (O.F.Müller) (Annelida: Polychaeta)', *Hydrobiologia* **470**, 203–18.

Sprung, M., 1994 'Macrobenthic secondary production in the intertidal zone of the Ria Formosa – a lagoon in Southern Portugal', *Estuarine, Coastal and Shelf Science* **38**, 539–58.

Thomas, N.S., Caldow, R.W.G., McGrorty, S., Durell, S.E.A., Le V. dit, West, A.D. and Stillman, R.A., 2004 *Bird Invertebrate Availability in Poole Harbour*.Wareham, Poole Harbour Study Group.

Underhill-Day, J. and Dyrynda, P., 2005 'Non native species in and around Poole Harbour', in Humphreys and May 2005, 159–62.

Zwarts, L. and Wanink, J.H., 1993 'How the food supply harvestable by waders in the Wadden Sea depends on the variation in energy density, body weight, biomass, burying depth and behaviour of tidal-flat invertebrates', *Netherlands Journal of Sea Research* **31**, 441–76.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 175–185

Shorter Contributions

THE GODWIN FAMILY AND WILLIAM JONES: LESSER-KNOWN BUILDERS OF POST-FIRE BLANDFORD

Histories of the rebuilding of Blandford Forum after the town was destroyed by fire in 1731 tend to be dominated by the names of the brothers John and William Bastard, who are credited with designing and building much of the post-fire town.[1] The Bastards were joiners by trade but, after establishing 'Bastard and Co.' with their brother Thomas, ten years before the fire, they entered into 'several Branches and Species of Trade and Business' which included architecture and design.[2] In common with other 18th-century craftsmen, the Bastards often took on the work of designing and overseeing the construction of entire buildings, subcontracting elements of the work to other skilled men as the need arose, and it is believed that this is the method they employed for much of their work in post-fire Blandford.[3] Little has been written about the individuals who were subcontracted by the Bastards to assist in the work of rebuilding the town, although details of the identities of some of them, and information about the work they carried out, are extant in civic and parish records.

Two names that appear frequently in connection with building work, during the intense period of reconstruction in the twenty years following the fire, are those of Francis Godwin and William Jones. The Godwin (or Goddin, or Goddinge) family had a long history of undertaking building work for the town; the Blandford Chamberlain's accounts record payments to the family, for such work, for at least a century before 1731.[4] Well established as the Godwins were by the time of the fire they were not, apparently, as prosperous as the Bastards. 'Francis Goddin' is recorded in the survey of post-fire losses (compiled by John Bastard) as having lost property worth £39. 10s 6d. This may be compared with the 'Bastard & Co' losses of £3709. 10s 4d, and the individual losses sustained by Thomas Bastard (£634. 5s) and by William Bastard (£129).[5] There were two individuals named Francis Godwin working in the post-fire town, Godwin 'senior' and Godwin 'junior' (almost certainly father and son who were probably in business together)[6] and it is sometimes unclear which Godwin is noted in the records. William Jones does not appear in the list of fire losses (neither does anyone with the name of Jones) and it is possible that he came to the town in the immediate post-fire period.

The Godwins and William Jones worked on the construction, and the maintenance, of a number of Blandford's important post-fire buildings. They worked often in association with the Bastards but may also have carried out work independently. One of their achievements was the rebuilding of the town's jail. The old jail was described by John Bastard in his list of buildings destroyed in the fire as having been 'old and thatched' and the prompt construction of a new and solidly built jail was clearly of importance for the well-being of the townspeople. By 1733 it had been (or was about to be) rebuilt. The Chamberlain's accounts for that year record the payment of £12 to 'Frank Godwin and William Jones as per Agreement for building the Goal [sic]'. For the jail project Godwin and Jones may have worked directly for the corporation of Blandford, or they may have worked in association with the Bastards (there are no specific references, in corporation accounts, to the Bastard brothers in connection with work on this building).

The new jail was not an isolated cell but was incorporated in an area listed in the first post-fire corporation rent-roll as 'Jayle Square', which apparently consisted of several houses as well the prison, all of which may have been built by the Godwins and William Jones.[7] Their interest in the area around the jail certainly did not end in 1733. The corporation rent roll already noted (which covers the years 1739 to 1745) lists 'Francis Godwin junior' as a tenant of the Square. 'William Joans' and a third leaseholder (described as 'The Widow Upward') were also tenants of corporation properties in the Square but were, apparently, sub-letting their premises. Widow Upward's tenement was noted in the rent roll as having been 'Before the Fire Called the Barne', which probably refers to the Parsonage Barn where, until the conflagration, the Bastard brothers had stored stock and equipment valued at £1538 18s.[8]

It is unlikely to have been only the Bastards whose business, and reputations, benefited from the rebuilding of the town. Francis Godwin senior died in 1744[9] and, in the following year, Godwin junior decided to acquire more of the land around the jail, perhaps in order to extend his work premises. The Corporation Minute Book for the year 1745 records that

> It is agreed that Francis Godwin shall have a lease of that piece of Ground nigh to the Gaol formerly part of what was called Andrews and is part of the Parsonage adjoining to Mr Lewen's Malthouse for a term of 15 years at 3s 4d a year on condition he Erects a wall & doors Tileing &c as in his lease & to keep it well repaired[10]

Godwin junior was clearly a respected figure by the mid-1740s; in December 1744 he was chosen by the Blandford vestry to be a waywarden (whose duties were to supervise the highways of the parish) 'for the year ensuing'.[11] As the year of his election was the one in which Francis senior died, it is possible that Godwin junior was elected to an office once held by his father.

The Godwin family was also involved in work on the Tabernacle (the temporary church erected soon after the fire in what was then Winchester Square). The Blandford churchwardens' accounts for 1734 include a payment of 16s 8d, to 'Frank Godwin', for 'paving the Tabernacle' (presumably as part of the initial construction work) and in 1736 they made a small payment to him for mending tiles there.[12] Two years later Godwin received the sum of 3 shillings from the churchwardens, for 'mending [the] Tabernacle and [for] Tile'. The need to mend the Tabernacle on more than one occasion (albeit involving apparently minor repairs) so soon after it had been erected, may indicate that the temporary structure did not wear well (the churchwardens' accounts also record a payment, in 1737, to an unspecified person, for 'mending the Tabernacle windoes').The Godwins (whether it was Francis

junior or senior who worked on the Tabernacle is unknown) were not responsible for the entire construction of the temporary church and they were almost certainly subcontracted by the Bastards, who have been credited with building the structure at a cost of £300.[13] The Tabernacle is described by Hutchins as being constructed 'of boards'[14] and the bulk of the work would have been carried out by joiners (and, therefore, probably by the Bastards themselves).

Again in partnership with William Jones, one of the Godwins was involved in the construction of the Hurdle House, where the town's market equipment was kept. This building stood before (and probably also after) the fire on Sheep Market Hill. In January 1738 'Francis Godwin and William Jones' were paid £4. 8s 10d by the corporation for 'work at the Hurdle House' and this payment included an allowance of 1 shilling for beer. A separate payment, of £1.10s, had been made by the Chamberlain to William Jones in October 1737, in settlement of 'a Bill for the Hurdle House'. Francis and William were again working in association with the Bastards who apparently took the major role in the reconstruction of this building; the Chamberlain's accounts record a payment, on May 11th 1738, of £28. 7s. to, 'Mr Bastard...for the Hurdle House'.

The Godwin family and William Jones also undertook work on the imposing stone-built edifices of the post-fire town, notably the Town Hall (thought to have been largely completed by 1734, although some work was carried on there in the 1740s) and the parish church (built between 1732 and 1739 with a later phase in the 1740s).[15] It is possible that the Godwins (and, perhaps, William Jones) had masonry skills. The tasks undertaken by Francis Godwin in relation to the Tabernacle suggest the skills of a bricklayer and, in the 18th century, a bricklayer's work could include tiling, walling, plastering, paving with bricks and, outside London, might also include the work of a stone mason.[16] Whether or not they were skilled in stone masonry there were many tasks which the Godwins and Jones could have undertaken, in respect of these buildings, which were within the capabilities of a bricklayer or general builder (both structures have tiled roofs, for example).

The Bastards were responsible for designing and overseeing the building of the church and the Town Hall (although the church was completed by 'other hands')[17] and their workforce included known and trusted individuals. The Blandford churchwardens' accounts for 1738–9 record the payment of 3s 8d to William Jones for 'Whiting the Church'. This may be a reference to lime-washing the interior walls of the church, or could refer to plastering work, painting or puttying.[18] Despite his association with John and William Bastard, Francis Godwin may have been involved in the second phase of the rebuilding of the church in the 1740s, when to the chagrin of the Bastards, the work of completing the church passed to other designers and builders, and a tower and cupola were erected instead of a spire.[19] In 1745 the churchwardens paid 'Frank Godwin and Pitney' the not insubstantial amount of £8. 19s 6d. Although no details of the tasks undertaken by Godwin and Pitney are given in this entry it is clear that the two men had carried out a significant amount of work, and it is unlikely to have been associated with anything other than the completion of the church. In that same year the churchwardens made a payment of £3. 4s 3d to Francis Cartwright of Bryanston[20] who is thought to have been one of the individuals involved in the construction of the tower.[21] Francis Godwin may also have taken part in another, if relatively minor, phase of the development of Blandford church in the 1760s when the churchyard was enclosed by railings 'all sett up on 9 Inch Brick worke 15 Inches high and all thrice well painted and finished & compleat'.[22] A number of payments were made by the churchwardens to Godwin during that decade, although no details of his work are given.

Francis Godwin junior also carried out unspecified work on the Town Hall and the payments for this work indicate that Godwin's association with the Bastards was not brought to an end by his willingness to work for 'other hands' on the completion of the church. An entry in the Chamberlain's accounts for 1744–5 records the payment of 3s 7d to a John Beale for 'fire, candle & Beer when Mr Bastard and Godwin was at work at the Town Hall' and another entry for that year (perhaps relating to the occasion when the fire, candle and beer were needed) records the payment of £3. 16s 9d, to Francis Godwin, 'for work done about the Town Hall as by Bill'.

Another building central to the life of the town was the school house, which had been almost completely destroyed in the fire and was valued by John Bastard at £524. An entry in the Corporation Minute Book for 1740 noted that 'Mr Bastard' had produced an estimate for completing 'the walls &c of the schoolhouse amounting...to £12. 10s 0d'. Francis Godwin (either junior or senior) had apparently been involved in the construction of the school (situated north-west of the church) from the outset; in 1739 'Frank Goddin' was paid £2. 17s 11d by the Chamberlain, in settlement of 'a Bill for School House'.[23] There were further payments to Godwin for work on the same building and its environs in the years 1741 to 44, including (in October 1744) a payment of £2 for 'work done going up to the School house', which may indicate that work on that area was then approaching completion.

From 1740 William Jones' name is missing from the Chamberlain's and churchwardens' disbursements, although he is still recorded, during the 1740s, as paying rent for his house near the jail. Frank Godwin's name continued to appear frequently in parish and corporation accounts into the 1760s (often, as has been noted above, for unspecified work). Despite having been involved in the reconstruction of most of the town's important buildings Godwin was willing to turn his hand to many kinds of task. In 1752, for example, he and several other men were paid 1s 6d, by the Chamberlain, for 'Throwing out the snow out of the streets and the Town Hall'. The small remuneration suggests 'beer money' given for a job willingly undertaken for the benefit of the town and its inhabitants.

The Godwins and William Jones are examples of many, largely unacknowledged, individuals who contributed their skills, labour and enterprise to the rebuilding of Blandford Forum after the devastating fire of 1731. They were involved in the construction of a succession of corporation- and parish-owned buildings that were central to the life of the town (and they may also have worked on privately owned houses for which no records survive). They were clearly considered by those in charge of rebuilding the town to be reliable and skilled men. Although they may

usually have worked in association with John and William Bastard, it is possible that the development of 'Jayle Square' was carried out by the Godwins and Jones independently. They may not have designed the town's grand civic and parish edifices (although they carried out work on them), or have had the ambitions or acumen of the Bastards, but the efforts of such men are an integral part of the story of the rebuilding of Blandford Forum.

NOTES

1 See, for example, P. Smith, *Blandford*, 1968, 35–7; other names mentioned in connection with the rebuilding of the town tend to be those of architects and designers such as Nathaniel Ireson of Wincanton. See, for example, A. Oswald, *The Country Houses of Dorset*, second edition, 1959, 30–8.

2 H.M. Colvin, 'The Bastards of Blandford, architects and master-builders'. *Archaeological Journal* (1948 for 1947), 179–80; Thomas Bastard senior, the father of Thomas, John and William was also skilled in architecture. Thomas Bastard junior, the senior partner in Bastard and company, survived the fire of 1731 by only a few weeks.

3 B. Cox, *The Great Fire of Blandford Forum 1731*, revised edition, 1993, Blandford Forum Museum Trust, 5.

4 See, for example, the Blandford Chamberlain's Accounts for 1636 in which 'Goddinge' was paid for a variety of work on the churchyard wall, including '370 yeards of pavinge'. Blandford Chamberlain's Accounts 1564–1750, DC/BF/6A/81.

5 The list of losses is reproduced in Cox, *The Great Fire of Blandford Forum*, 16–22.

6 Few parish records survive from the pre-fire period.

7 The rent roll is included in the Chamberlain's Account book following the entries for 1743. The years 1739–45 noted in the text are those for which rent received has been systematically filled in.

8 A rent of 4 shillings was received by the corporation for 'Elizabeth Upward's...House at Plocks' in 1747; John Bastard's list of losses in the fire of 1731. The entry for the Parsonage Barn is reproduced in Cox, *The Great Fire of Blandford Forum*, 7.

9 DC/PE/BF RE3.

10 Blandford Corporation Minute Book 1733–1835, vol. 1, DC/BF/6A/65.

11 Blandford Vestry Minute Book 1732–1884, DC/PE/BF/VE 1/1.

12 DC/PE/BF/CW 2/1.

13 H.M. Colvin, 'The Bastards of Blandford', 182.

14 J. Hutchins, *The History and Antiquities of the County of Dorset*, 3rd edition (eds) W. Shipp and J.W. Hodson, 1861–73, vol. 1, 217.

15 Work was still being carried out at the Town Hall in the 1740s but the nature of that work is unclear. The church was built by trustees, whose records of the building work are not extant. Colvin, 'The Bastards of Blandford', 183.

16 J. Ayres, *Building the Georgian City*, 1998, 109.

17 See, for example, Colvin, 'The Bastards of Blandford', 184, where it is noted that the Bastard brothers built the church except for 'the tower and Turrett'.

18 www.answers.com/topic/whiting-1 – 71k. The churchwardens apparently took over the finances of the church fabric from 1739.

19 Colvin, 'The Bastards of Blandford', 185.

20 Francis Cartwright (1695–1756), master mason. His monument in Blandford St Mary church includes a depiction of Came House which he designed for John Damer in 1754. With John Bastard, he rebuilt Crichel House for Sir John Napier after the Tudor manor was destroyed by fire in 1742. The extent of his contribution to post-fire Blandford Forum is unclear.

21 Oswald, *Country Houses of Dorset*, 34-5; in 1742–3 the churchwardens had paid Francis Cartwright the sum of £20. 14s 4d.

22 Colvin, 'The Bastards of Blandford', 190.

23 The school house is now called 'The Old Bank House'.

Judith Ford

A NEGRO AT LYME REGIS IN 1589

Recent research on ethnic minorities in West Dorset (Parker *et al.* 2004) and Dorset (Ford 2005) has explored many early references. Researching Lyme Regis's maritime history has produced the earliest reference to an African at Lyme. The Mayor's Accounts for 1589/90 (DC/LR/G2/3B) has 2 shillings for the 'carriage of the negro to the Justice'.

Was this man referred to as 'the negro', the town's first acquaintance with a black man? How did he come to be in Lyme and was he slave or freeman?

Black people were certainly present in Elizabethan England to the extent that in 1596 a proclamation was made licensing their deportation; such action would be indicative of significant numbers to merit such a measure. (Ford 2005, note 22).

It is possible that Lyme's negro was an African brought to the town on a ship returning from either the Gambia or Senegal and although the first recorded voyage from Lyme is the barque *Cherubim* in 1591, earlier voyages cannot be ruled out (Roberts 1834, 65–66). Merchant adventurers were trading with West Africa from the 1550s; this led to Captain John Hawkins initiating the English slave trade in 1562. The queen, giving him approval, expressed the pious hope 'that slaves would not b carried off without their free consent' (Thomas 1997, 154–58).

Other options to be considered are: he may have been a slave liberated by privateers raiding Spanish ships in distant waters, that the high mortality rates among crews on voyages to the Guinea coast may have led to him being conscripted as crew or that he was a crewman on a foreign vessel and simply jumped ship. It is not possible to rule out that he arrived in Lyme having entered England through some other port and it is plausible that he may even have been escaping enslavement. A further possibility is that he was brought to England as a 'showpiece', recorded instances date from 1554 (*ibid.*, 154–55).

In 1601 'negroes and blackamoors' were viewed as an encumbrance, 'to the great annoyance of people who want the relief these people consume'. The Queen ordered that anyone possessing them was to give them up for deportation, the use of the word 'possessing' would suggest that some were held as slaves.

Religion has been used through the centuries to justify unethical racial actions; this was the case with the negroes and blackamoors. They were described as 'infidels having no understanding of Christ or his gospel' (Ford 2005. 13–14).

The question of slavery in England is clouded in ambiguity. The Domesday Book recorded that ten per cent of the population were slaves; however, by the 12th century slavery had ceased to exist in England. Serfdom had effectively taken its place but it was limited by law and custom. Interestingly it has never been abolished; theoretically this means other forms of slavery became illegal on British soil (Gardiner and Wenborne 1995, 684).

In 1706 the Lord Chief Justice ruled that 'as soon as a negro comes into England, he becomes free'. Just how much attention was paid to this statement is a matter of conjecture, a contrasting legal opinion gave 'the laws of England take no notice of a negro' (Thomas 1997, 472).

There are no definitive answers to the questions asked, although his status would not seem to have been that of a

slave or vagrant as the entry in the account book would surely have indicated had such been the case. His transfer to the Justice may have been to avoid him becoming a financial liability on the parish or in response to instructions from a higher authority. There of course remains one final question, what became of him?

BIBLIOGRAPHY

DHC – Dorset History Centre

Ford, J., 2005 'Evidence of black slaves in Dorset records', *Proceedings of the Dorset Natural History and Archaeological Society* **127**, 13–20.

Gardiner, J. and Wenborne, N. (eds), 1995 *The History Today Companion to British History.*

Parker, L., Ford, J. and Draper, J., 2004 *Ethnic Minorities in West Dorset.*

Roberts, G., 1834 *The History of Lyme Regis Dorset.*

Thomas, H., 1997 *The Slave Trade: The History of the Atlantic Slave Trade* 1440–1870.

Peter Lacey

THE FIRST PUBLICATION OF WILLIAM BARNES'S DIALECT POEMS IN THE *'DORSET COUNTY CHRONICLE'* 1838–1843

(Based on an address to the William Barnes Society at its annual lunch in Dorchester on 16 June 2007)

It was when William Barnes was keeping a school at Chantry House, at Mere, in Wiltshire, late in 1823, that the first issue of the *Dorset County Chronicle* appeared. And though resident many miles from Dorchester at that time, he seems to have recognised at once that this new publication would be the right medium in which to give expression to the wealth of ideas now teeming in his brain. The preparation for this had been five years spent alone at Mere, extending his extraordinary range of languages both ancient and modern, as well as reading and pondering practically any academic book he could get hold of. As a result, he now had many things to say, and he needed an outlet to do so. The *Chronicle* seemed to be just what was wanted.

The new paper consisted of a single folded sheet, presenting four large-size pages, and came out every Thursday price 7d, equivalent to a day's wages for farm labourers in the county. The *Chronicle*, however, did not look to them for its readership, but to well-to-do tradesmen, businessmen, professional people, farmers, and landowners, as well as members of the gentry and aristocracy of which there were no shortage in Dorset. From the first, the influence of the paper was much greater than its probable small circulation might suggest, for copies would be passed hand-to-hand and progressively down the social scale.

The paper's front page was largely taken up with public notices and advertisements, especially related to farming. Inside came national and local news, reports on the royal family, social events, political meetings, reports on crops and markets, and chit-chat. The ethos of the paper was strongly conservative and protestant. An article that appeared in January 1831 was typical, with its report of the formation of 'Conservative associations in every part of the Kingdom' with the intention of opposing 'the infidelism of the ballot', which was considered 'unbecoming to the manly feelings of Englishmen'. The new mechanics' institutes, too, were considered to be a 'dangerous, possibly radical weapon to put in the hands of mechanics'. The letters column printed pieces signed 'A True Protestant', 'Viator', and 'A True Briton', explaining the horrific consequences of giving Catholics the vote.

Perhaps surprisingly, the paper devoted a considerable space to literary items. This was probably in response to the many female readers, for whom literary gossip would have fulfilled the status of the celebrity chat of the present day. Then there were long extracts from recent publications, which would have cost the editor nothing to reprint. A regular feature was the poets' corner, in which appeared such established names as Barry Cornwell, Mrs Hemans ('The Stately Homes of England') and Lord Byron, who might be printed now that he was safely dead.

A formidable weekly task for the editor, George Simonds (or Simmonds), was to find enough material for his pages. There can be no doubt, therefore, that he would have been delighted to have received offerings from Chantry House, at first hesitantly, but then in a flood. For William Barnes soon became a major contributor to the paper, writing on all sorts of topics. He was an editor's godsend – he helped to fill up the columns and cost nothing. In return for a prodigious amount of copy, Barnes's only reward – though this was a sufficient one for a modest man – was to see himself in print. Not his name though. As we shall see, he kept that quiet.

From 1828–1835, while still at Mere, Barnes sent Simonds three quite different sorts of contributions. They were so different that it was almost as if they came from three separate people. There were sonnets in standard English, mostly fashionably melancholic compositions, modelled on Barnes's favourite poet, Petrarch, whose works he had translated from the Italian. These were signed 'WB'. Then there were letters to the editor, at least 34 of them in this period, about all sorts of subjects. Some were on social matters, such as the treatment of servants or criminals. Though never overtly political, their tone was predominantly conservative, which accorded with Simond's own views. Others treated of scientific questions, rural customs, church affairs, history, culture, and, increasingly, philology. These items were signed 'Dilettante'. Finally, in 1833–4, Simonds received the first of seven 'eclogues', long dialogues in which farm labourers discussed in their own language such issues as the catastrophic effect of the loss of their commons rights and the consequences to them of rural enclosures. These items were unsigned.

Nevertheless, from the handwriting, Simonds must have known that 'WB', 'Dilettante', and Anon. were the same person, though he probably had never met Barnes before 1835, when the poet returned to the town to set up a new school. For a while, contributions from Barnes then almost ceased and it was not until late 1838 that they became regular again. From now on, however, until 1843, the great bulk of Barnes's contributions to the paper consisted of poems in the Dorset dialect. Initially they were kept separate from the genteel verses in poet's corner. But soon they became a familiar feature of the paper, at first a subject of rather patronising amusement, and then, perhaps, a source of grudging local pride. What other local paper in England could offer such oddities?

Though Simonds knew the author of the Dorset dialect poems, even Barnes's children were for may years unaware of their origin. It may well be that he was apprehensive

about the effects of making it public. After all, many local parents sent their boys to his school precisely to encourage them to speak standard English rather than the idiom of the Dorchester under-class. Seeing poems entitled 'What Dick An' I Done' and 'The Brook That Runn'd By Gramfer's' in the local paper, they might well have thought that the author knew no grammar. For them to discover that this person was the same Mr. Barnes who kept the private academy in South Street would have been no great advertisement for his business. Consequently, though there were many rumours, the author's name was kept secret until 1844 when a book of verses appeared entitled *Poems of Rural Life in the Dorset Dialect*. And there on the title page was the admission: 'by William Barnes'.

The publishers were John Russell Smith of London and George Simonds himself. Simond's had done very well out of the connection with Barnes and this association continued until 1846, when there was a dispute between them. Apparently Simonds wanted to withdraw his son from Barnes's school without adequate notice, and the disagreement then expanded to take in issues to do with the publication cost of Barnes's books. After an exchange of letters Barnes wrote loftily: 'William Barnes gives Mr. Simmonds notice that he does not any longer takes (*sic*) the *Dorset County Chronicle*.[1] This effectively ended Barnes's connection with the paper.

In after years, he expanded his book substantially with two more collections of dialect poems, and the volume subsequently went through a number of editions. Barnes was not content, however, merely to reprint his earlier verses in their original form. He progressively edited them year by year.[2] In this, his chief motive was to make them more comprehensible to genteel readers by reducing the dialect element. This was on the advice of a number of influential friends, particularly the popular poet, the Hon. Mrs Caroline Norton whom he had met at Frampton Court, the home of her brother, Richard Brinsley Sheridan MP. In order to increase his sales, she counselled him to 'cocknify' his verses.[3] Fortunately, in later years Barnes had the confidence to ignore such advice.

Subsequent editors have tended to treat the 1844 edition of his poems as the Ur text, the original version of his earliest poems. But, as we have seen, this is not so; the first printed versions are to be found in the pages of the *Dorset County Chronicle*. Yet hitherto, the first dates of the publication of his poems in that paper have never been traced. Now this has been done, and the chronology is set out below. As a result, one of the first things that meets the eye is just how prolific Barnes was. For a number of years he was supplying Simonds with a new poem about once a fortnight.

In perusing this list there a few points to be born in mind. Firstly, it is not necessarily comprehensive; some poems may have been missed and, anyway, the records are incomplete. Nevertheless, the items included are undoubtedly by Barnes. The infallible mark of his composition is the sub-heading IN THE DORSET DIALECT. Furthermore, despite many later revisions, the spelling reproduced here is exactly as it appeared in the *Chronicle*. As such, it gives some indication of his first thoughts on how to render the pronunciation of the dialect in print. Yet in this he is not consistent; for example, even in these first years of composition he employs a number of different spellings, of the name 'Jean'. Finally, a reading of the 1844 book reveals just how much he had already changed the first versions. Sometimes this is in the spelling of dialect words but elsewhere, in the writing itself. Not only is the verse made more grammatical – later we have 'What Dick An' I *Did*' and 'The Brook That *Ran* by Gramfer's' – but at times he rewrites whole verses.

Yet the basic tenor of his poems barely changes. For, once he had established the format of his poems in the *Chronicle*, he was enabled to work and rework his material, eventually producing a body of verse offering a unique insight into the lives of rural people in pre-industrial days. Thomas Hardy wrote of Barnes that he was 'probably the most interesting link between present and past forms of rural life that England possessed'. This opinion he largely based on Barnes's five hundred or so dialect poems, the originals of which may be glimpsed in the faded columns of a provincial newspaper.

Dialect poems by William Barnes Appearing in the Dorset County Chronicle

1838	
6 Dec.	The Unioners
27 Dec.	The Settle An' The Girt Wood Fire
1839	
3 Jan.	The Carter
17 Jan	The Girt Woak Tree That's In The Dell
31 Jan.	The Shepherd O' The Farm
14 Feb.	Woodcom Fieast
21 Feb.	The Milk-Maid O' the Farm
7 March	Evemen In The Village
28 March	Liady Day An' Ridden House
11 April	Evemen An' Maidens Out At Door
2 May	A Zong – 'O Jenny Don't Sobby'
16 May	May
23 May	Whitsun An' Club Wa'ken
13 June	Hay-Miaken
27 June	Hay-Carren
4 July	The Work Buoy O' The Farm
18 July	The Maid Far My Bride
25 July	Summer Evemen Dance
1 August	Carn A Turnen Yoller
22 August	Harvest Huome: The Vust Piart: The Supper
26 Sept.	The Huomstead
3 October	Tiaken In Apples
17 October	Bob The Fiddler
28 Nov.	Martins Tide
26 Dec.	Keepen Up O' Christmas
1840	
9 Jan.	The Happy Daes When I Wer Young
20 Feb.	Thomas Ariecommenden Miaster's Woldest Dauter
27 Feb.	In The Stillness Of The Night
2 April	The Church An' Happy Zunday
9 April	Sweet Music In The Wind
14 May	Vellen The Tree
21 May	I Got Two Viels
4 June	Uncle An' Aunt
2 July	The Wold Waggon
16 July	The Drove
22 July	The Common A' Took In
30 July	A Wold Friend

6 August	Bees A-Zwarmen
13 August	Haulen Carn
20 August	Jenny Out From Huome
3 Sept.	The Ruose That Deck'd Her Breast
1 October	Out A-Nutten
29 October	A Bit O' Fun
19 Nov.	Nanny's Cow
3 Dec.	The Shepherd Buoy
17 Dec.	Haven Oon's Fortun A-Told
24 Dec.	Grammer's Shoes

1841

4 Feb.	A Witch
18 Feb.	A Ghost
25 Feb.	(Wringen?) Oon Gwain O' Zundays
18 March	A Good Faether
25 March	The Spring
1 April	Readen Ov A Headstuone
8 April	Miary Ann's Chile
15 April	The Beam In Grenley Church
29 April	The Woody Holler
27 May	Jian's Wedding Dae In Marnen
22 July	Beami'ster
12 August	Thatchen O' The Rick
19 August	The Vaices That Be Gone
16 Sept.	A Zong Of Harvest Huome
28 Oct.	Miaple Leaves Be Yoller
9 Dec.	The Ivy
23 Dec.	Fanny's Be'thda
30 Dec.	The Frost

1842

17 March	The Music O' The Dead
24 March	What Dick An' I Done
7 April	The Blackbird
14 April	The Pliace A Tales A' Twold O'
21 April	Axen Maidens To Goo To Fiair
28 April	Veels(?) In The Light
5 May	Hope In Spring
23 June	Miaken Up A Miff
30 June	The White Road Up Athirt The Hill
14 July	Wher We Did Kip Our Flagon
21July	Ant's Tantrums
11 August	The Stuonen Puorch
8 Sept.	Farmer's Sons
15 Sept.	Jiane
29 Sept.	Shroden Fiair : The Vust Piart
6 Oct.	Shoden Fiair : The Rest O't
27 Oct.	The Brook That Runn'd By Gramfer's
3 Nov.	Marnen
10 Nov.	The Fiary Veet That I Da Meet
17 Nov.	Guy Faux's Night
24 Nov.	The Dree Woaks
1 Dec.	The Huomstead A-Vell Into Han'
8 Dec.	The Welshnut Tree
29 Dec.	Zitten Out the Wold Year

1843

12 Jan.	Zunsheen In The Winter
6 April	The Weepen Liady
20 April	The Woodlands
11 May	Evemen Twilight
29 June	The Evemen Star O' Summer
6 July	The Sky A-Clearen
13 July	The Mead A' Mow'd
20 July	The Clotes
27 July	The Bells Of Alderburnham
31 August	The D'rection Post
2 Sept.	Night A-Zetten In
14 Sept.	Jean O' Grenley Mill

1844

None

NOTES

1 The dispute between Barnes and Simonds is recounted in Hearl, Trevor, *William Barnes the Schoolmaster*, pp. 220–22.

2 At the time of writing (2007) detailed research into Barnes's progressive re-editing of his poems is being conducted by Dr Tom Burton. See: Burton, T.L., 'What William Barnes Done: dilution of the dialect in later versions of the "Poems of Rural Life"'. *The Review of English Studies*, New Series, 58, No. 235, 2007.

3 Details of Mrs. Norton's poetic advice to Barnes are given in Chedzoy, Alan, *A Scandalous Woman: The Story of Caroline Norton*, pp. 190–92.

Alan Chedzoy

THE NEW ANTIQUARIAN ASSOCIATION VS DORSET COUNTY MUSEUM

The proper Dorset County Museum in Dorchester was not in a very good state in 1875, being described as 'merely two or three rooms in which were preserved a valuable collection of fossils. For the rest it was a repository of various indiscriminate objects sent there by people who did not want them and yet did not like to destroy them' (Moray 1923).

A rival, the Dorset Natural History and Antiquarian Association (the direct ancestor of today's DNHAS) was founded at Sherborne in 1875, and proposed to found a county museum in that town, much to the disgust of the Dorset County Museum which had been set up in Dorchester some thirty years earlier (Draper 1996). In fact a museum already existed at Sherborne too, started by the school in 1868 (Torrens 1976).

The Dorset County Chronicle, the main local weekly paper published in Dorchester, reported support for the Dorset County Museum, but it was the more liberal *Weymouth Telegram* which declared 'Would it not be better to re-arrange and improve the valuable collection already in the Dorset County Museum at Dorchester?' (*Weymouth Telegram* 2 April 1875).

This inspired a Dorset County Museum supporter to write to the newspaper:

> Thank you for your kind words with reference to the Dorset County Museum and Library. Our friends at Sherborne, who have recently galvanized themselves into a state of scientific enthusiasm, might have commenced their work more graciously without doubt, and probably more successfully, had they abstained from vilipending the efforts which others have long been making in the same direction. If the County Museum is "languishing", why is it so, but because those, who are interested in the studies which it was established to promote, have not rallied round it, and given it the assistance, either technical, or pecuniary, which I venture to believe such an undertaking well deserved? Mr Wood, as far as I understand the report, complained of the arrangement of the fossils, and mentioned a

certain specimen, which, albeit somewhat prominent, he was unable to find. With all respect for him, I think it still possible that he did not know where to look in the right place for it; seeing that the fossils were arranged by an accomplished geologist, and that his arrangement has never been interfered with. Of this collection Professor Owen has written: "The Museum is rich in the variety and fine condition of its fossils, which qualities are better than mere numbers of specimens. It will attract, I hope, whatever natural or antiquarian curiosity may be discovered in the vicinity; and so rival, as an instrument in the advance of knowledge, any other Local Museum. Dorchester has made a good beginning, and not merely so, but a good progress". With similar testimony from Sir Charles Lyell, and other eminent geologists, the Dorset County Museum can afford to bear a few chill blasts from Sherborne, and its Council must hesitate a good deal, before they consent to remove it from its present central position in the county town, to a distant, and not very accessible corner of Dorset, which, however distinguished by a most excellent public school, and the best of Squires, has still to win its spurs in the field of Natural History and Antiquities.

ANTI-LIGNUM

Anti-lignum is anti-Wood. The Revd H.H. Wood was treasurer of the new society, and fiercely anti Dorset County Museum (Torrens 1976, 36; Draper 1996, 21).

Happily after only three years of working in opposition, the two societies joined up to rebuild and rearrange the Dorset County Museum – at Dorchester.

BIBLIOGRAPHY

Draper, Jo, 1996 'The early years of the Dorset County Museum', *Proceedings of the Dorset Natural History and Archaeological Society*, **118**, 13–24.

Moray, Earl of, 1923 Letter from, quoted a 'First Winter Meeting' *Proceedings of the Dorset Natural History and Archaeological Society* **44**, 1–11.

Torrens, H.S., 1976 'The Sherborne School Museum and the early collections and publications of the Dorset Natural History & Antiquarian Field Club', *Proceedings of the Dorset Natural History and Archaeological Society* **98**, 32–42.

Jo Draper

AN UNUSUAL CAT BURIAL FROM CHARMOUTH

In August 2007 I was asked to examine a lead covered box which had been found during building work at a cottage on the western side of Charmouth. The box had been buried approximately one metre outside the door of an outbuilding, which had once been used as an animal shed. It lay about 100mm below a 100mm thick layer of decayed tarmac.

The box was 620mm × 180mm × 215mm, and was completely covered in lead sheet when discovered (Fig. 1). However, when it was inspected it was possible to see the wooden side of the inner box through a small tear in the lead, caused by a builder's spade. The lead covering had been formed by wrapping a lead sheet round the wooden box and folding and soldering the edges together. Two separate end pieces had been bent over the ends and also soldered in place. This lead sheath must have been virtually airtight.

Figure 1: The box as found

The lead was carefully cut away to reveal a roughly made wooden box, probably made of scraps of timber; two of the pieces looked like lengths of tongued and grooved floorboards. The lid, held on by several machine-made nails, was prised off to reveal the body of a cat, packed round with several pieces of blanket. The cat had been positioned in a life-like crouching pose, with its tail wrapped round one side.

There was no direct evidence for the date of the burial. The cottage appears to be of 19th-century date; the outhouse has been added to the cottage, either in the later 19th century or early in the 20th. The builders were of the opinion that the old tarmac had been laid about 50 years previously. The blankets that had been used as packing had been hand sewn, which would be consistent with an early 20th-century date. The most likely date for the burial is during the 1920s or 1930s.

At first, it was thought that this was just an unusual pet burial, but the elaborate nature of the burial, in particular the lead outer box, as well as the life-like pose of the cat suggests another possibility. Cats, usually dried or 'mummified' have been found in old houses in positions that imply deliberate deposition. These are thought to be examples of traditional magic, protecting the house from vermin, either real or spiritual (Merrifield 1987, 129–31). Twelve examples of such 'mummified' cats have been recorded from Dorset (Harte 2000) some set up in a lifelike or hunting posture. Jeremy Harte records that, 'A black cat with the skeleton of a mouse in its mouth was discovered in the 19th century in a house in Portland'. This specimen is now a popular exhibit in Portland Museum. These examples, however, have all been dried and placed in a building, unlike the Charmouth cat which was buried just outside a door. This was the favoured position for burying a 'Witch Bottle', a bottle containing a variety of items, commonly pins, nails, hair and urine, which was buried either to protect the household generally or as a counter charm against a suspected magical attack on a specific individual (Merrifield 1987, 163–75). This mixture of customs is recorded elsewhere; Merrifield also notes that 'One (cat) from a Swedish farm had been set up in an unnatural position under a front doorstep that had been put in place in the 20th century' (Merrifield 1987, 129).

It can therefore be suggested that this cat burial is probably a late survival of two ancient pieces of folk magic.

Figure 2: 'Old Tom'

The deposition of a cat, in a hunting pose, in such a way that it would be preserved for a long time (the lead coffin had effectively preserved the cat from decay), and the burial of a specific object at the entrance to that building to give it supernatural protection. What it was protecting against, whether an unusual infestation of mice or something more malevolent, it is impossible to say.

The cat's body had been very well preserved (Fig. 2), but had a strong and unpleasant odour. This had become apparent as soon as the lead casing had been damaged. The house owner said that it was making her cats very nervous – perhaps they recognised what it was. The owner wrote to me a few days later and said that;

> My builders were very careful with 'Tom' and gave him a respectful burial on a site as near as possible to the original location. Let him continue to rest in peace and look after our cottage.

BIBLIOGRAPHY

Harte, J., 2000 *Folk Magic in Dorset* website on http://www.apotropaios.co.uk/dorset_survey.htm [accessed 11 September 2007].

Merrifield, R. 1987 *The Archaeology of Ritual and Magic*

Gordon Le Pard

THE HILTON TYPHUS EPIDEMIC OF 1848: POVERTY, PUBLIC HEALTH AND SOCIAL RELATIONS IN EARLY VICTORIAN DORSET

It is not often that reports of life in Dorset villages make the pages of the national press. And yet for a short time in the autumn of 1848 a severe outbreak of typhus fever made the villagers of Hilton the subject of letters to *The Times*, placing them at the centre of debates about poverty, public health and social relations in rural England. Hilton lies at the heart of Dorset, eight and a half miles from Blandford Forum, the nearest town. It adjoins the parish of Milton Abbas and the park of Milton Abbey, then seat of the Earl of Portarlington who owned most of both parishes. In the 1840s it must have seemed a remote location, being 'situated in a valley, between two ranges of high hills' with 'no direct thoroughfare through it'.[1] It is an extensive parish, including the hamlets of Ansty and Aller, and in 1851 it had a population of 761, a total that had risen by 65 per cent over the previous half-century. This sharp population growth put considerable pressure on the housing stock, which, as we will see, was a subject that came under close scrutiny in the autumn of 1848. The ensuing discussion brought the relationship between wealthy landowners and the poor living on their estates into sharp focus and posed uneasy questions for Victorian commentators struggling to come to terms with the nation's rapid urbanisation and industrialisation. It showed all too clearly that all was not well in the English countryside.

Hilton first came to public attention in a short article in the *Dorset County Chronicle* of 21 September 1848.[2] This reported the suicide of Joseph House, a 32-year-old labourer, who had been found hanging from a tree in the adjoining parish of Milton Abbas. An inquest in the village recorded a verdict that he had 'hung himself whilst in a state of temporary derangement' as a result of 'having lately been in a low desponding state'. This was attributed 'to a kind of low fever, which has visited Hilton with much severity for some months past'. At the inquest, the vicar, Revd Henry St Andrew St John, 'called the attention of those present to the state of the watercourse through the village, stating that it was ... allowed to stagnate'.

Under normal circumstances one might expect that to have been the last anyone ever heard of the outbreak of fever at Hilton. After all, epidemics were not uncommon and, despite having been present in the village *with much severity for some months past*, it had not troubled the pages of the county press. Nor had it even been discussed at meetings of the parish vestry or Board of Guardians, who administered poor relief in the parishes within the Blandford Poor Law Union.[3] However, the Revd St John was clearly greatly affected by House's suicide, and was determined not to let the matter rest. Thus, on 15 September 1848 he wrote directly to Viscount Morpeth, a cabinet minister in Lord John Russell's government.[4] St John chose his correspondent carefully, no doubt having read in the press that he had guided the government's Public Health Act through parliament over preceding months.[5] This legislation had arisen from growing concern over the economic impact of providing poor relief to those either unemployed, widowed or orphaned due to what were increasingly seen as preventable diseases.[6] The threat of cholera, which also struck Britain in the autumn of that year, was an additional incentive to act.

One of the most prevalent of these epidemic diseases was typhus, and it appears that contemporaries were correct in their belief that it was this that struck Hilton during 1848. The only list of symptoms recorded during this outbreak includes the eruption of spots, deafness and delirium, which is in line with severe cases of typhus.[7] However, at this time the disease was often confused with typhoid, with which it shared many symptoms including fever, muscular pain, headache and delirium. The principal difference was that only typhoid victims suffered diarrhoea, a subject on which the Hilton correspondence is silent. The diseases were also contracted by different means. Typhus is spread by the faeces of the body louse, its transmission encouraged by overcrowding; typhoid is spread by contaminated food and water.[8] As St John made clear 'the half-fed and worse housed inhabitants of this village' were extremely vulnerable to both diseases. The fever raged in the parish for most of 1848, and by the end of June there had been 58 severe cases of which six had proved fatal. By

November there had been a total of 115 cases and 17 deaths, predominantly of children and young adults under the age of 40. These cases were largely concentrated in the village itself, meaning approximately one in three of the 300 or so residents had been infected.

In the 1840s there was a widespread belief that typhus resulted from exposure to the 'effluvia' or odour given off by accumulations of manure, refuse or excrement. Revd St John noted that at times during the summer the effluvia at Hilton had been so strong as to drive him indoors from the vicarage garden.[9] However, although the link between typhus and the body louse was not discovered until 1909, St John also correctly noted the link between overcrowding and transmission of the infection. He describes the worst dwellings as those called 'the Poorhouses', provided by the parish officers as dwellings for the village poor. These were extremely overcrowded, there having been 85 residents in a row of two cottages and five small tenements prior to the outbreak of the fever. St John noted: 'For the use of these there is but one well of water which is frequently very foul and one Privy now divided into two and running into an open ditch close along the back of the houses, into which also all the filth of the dwellings is discharged'. He described how it first struck 'the family of a very poor widow, consisting of three sons and two daughters with bastard children, another widowed Sister and her son' all living in one 'compartment'. All but two members of this family 'had the fever very severely'. It then spread quickly to other large families living in the same row. In one, five members of the family succumbed to the illness and the father died; in another eight people all slept together in one room 10 feet square, one of whom died. The fever then spread more widely around the village and in one cottage belonging to the Lord of the Manor 'four of the six who had it, died'.

It is known that typhus was more likely to strike those whose health was already weakened and St John was in no doubt about the poor physical condition of those living in his parish. He described how the suffering of the children in one family was 'the most distressing I have ever witnessed being aggravated by previous starvation'. As in Ireland, the potato crop had failed 'for the last two or three years', an item 'which here constitutes one half of the food of the people'. The villagers' situation was further aggravated by the 'increased difficulty of procuring fuel from their being entirely debarred the privilege they had been accustomed to of gathering sticks in the adjoining woods and plantations'. At the root of this situation was the chronically low rate of wages. It was frequently stated that 8 shillings per week was the average wage, but St John felt that 'taking sickness, bad weather, and occasional want of employment into consideration 7 shillings are much more the amount'. This is only 1 shilling higher than the wage that drove the Tolpuddle Martyrs to form their union back in 1833.[10] Unsurprisingly, St John concluded that 'the prospect of the approaching winter under the loss of the Potato crop ... and the expected dearness of Bread, without any means of procuring fuel, is fearful to contemplate'. He felt that the experience of Hilton could not 'be exceeded by any description of Irish misery' and his sense of utter despair is clear in his remark that 'GOD alone knows when we may be mercifully delivered from the dire calamity'.

St John's striking description and heartfelt plea for help brought about an extensive inquiry into the condition of the village. Viscount Morpeth forwarded the letter to the central Poor Law Board and it was in turn passed to Poor Law Inspector Grenville Pigott to 'make inquiry into the facts and suggest a remedy'. Pigott was, however, resigned to the situation even before he visited Hilton, stating that 'The story is indeed a sad one, but one to which I fear there is many a parallel' and 'remedy ... none'.[11] When Pigott finally visited on October 21 1848 he confirmed St John's description 'in every particular'. He found that the parish houses had 'been indiscriminately and excessively crowded' and that 'the poor have been left in a state of destitution so great as scarcely to leave the means of existence'.[12] However, in this laissez-faire age agents of central government were largely powerless to act, and all that Pigott could do was explain what steps could be taken to clean the privies and ditches under the recently passed Nuisances Removal and Diseases Prevention Act.

Despite this, debate over the condition of the villagers of Hilton did not end there. On his visit Pigott was accompanied not only by Revd St John, but also by another Dorset clergyman, Revd Sidney Godolphin Osborne. Osborne was already a well-known campaigner on behalf of the rural poor and a frequent correspondent to *The Times*.[13] Thus, on 26 October a letter appeared in that newspaper, bringing news of the condition of Hilton to the homes and clubs of the middle and upper classes across the nation.[14] Osborne's report of the three men's tour of the village is every bit as disturbing as St John's letter to Viscount Morpeth. In describing the parish houses he stated 'I despair of giving you any faint idea of the manner these people are pigged together within their dwellings'. In one of the compartments in which the father had died they ascended 'with some difficulty' to the bedroom: 'You get into it by a sort of ladder; when in it you find it impossible to stand upright ... the floor is as rotten as possible, full of holes, through one of which the husband's leg had gone on one occasion'. He continued, 'The floors of some of the downstairs rooms are of mud, in pits or holes in many places'. And in another cottage a 'woman told us she could not keep a candle lighted in their bedroom, the wind blew in so'.

Such conditions roused considerable anger in Osborne, not only because of the physical conditions in which the poor lived, but also because of what were seen as the morally repugnant consequences of overcrowding. His description of the village is careful to record the number of 'bastard' children in these families, the crowding of adolescent children together in single bedrooms, and hints were made of incest, the poor being forced 'to live in a condition ... productive of every worst feature of carnal guilt'. Osborne was clear that this was the result of the 'neglect of those who have duties to perform towards them' which 'has been wilful, deliberate and continued'. This charge of neglect was aimed partly at the local elite of farmers and small property owners who dominated vestry meetings and filled the offices of overseers and churchwardens. They were criticised for their poor management of the parish cottages. However, his reference to 'duties' shows that Osborne shared the widespread paternalist view at the time that 'landed property had definite responsibilities as well as privileges'.[15] Indeed, in stating that the Earl of Portarlington was the chief proprietor of those 'places called dwellings for the poor' it is clear that Osborne's indignation was also roused by the inaction of those at the pinnacle of rural society.[16]

This theme was readily picked up in the following day's editorial, which noted that Osborne had described a situation 'in a rural and highly cultivated district, well stocked with clergymen and squires ... that would excite our surprise and disgust if we found it in central Africa'.[17] In no uncertain terms the author portrayed typhus as 'the mysterious messenger that steals from the labourer's cottage to the mansion of the lord, to tell him in language which *will* be heard, that he has neglected his duties to those whom PROVIDENCE has placed under his care'. This was a dangerous indictment as the fulfilment of these duties was seen as key to a stable society, especially in a year in which continental Europe had been shaken by revolutions. The message was clear: failure to address the 'sores of our social system' potentially had dire consequences for all. The outbreak of typhus at Hilton had ceased to be an issue of purely local importance and was now being portrayed as a broader reflection of the social conditions of rural England.

This criticism rallied the defenders of the status quo and in the following days letters were published criticising Osborne, accusing him of 'gross exaggeration' and 'artificial indignation'.[18] The curate of Milton Abbas, S.B. Harper, was keen to defend the Earl of Portarlington, describing him as 'remarkable for munificent generosity, considerate kindness towards the poor, unbounded benevolence, and charity'. Harper argued that the fever was endemic to 'low damp spots in the hollows of hills' and could not be attributed to the condition of the Earl's housing. Indeed, in a somewhat perverse statement, he noted that 'Milton Abbas is quite as crowded as Hilton', but 'there has not been a case of fever in the parish'. The following day a letter was published from the Earl himself, moved by the public criticism of his actions to highlight the fact that 'all the charities of the place – such as a clothing club, a labourers' friend society, and so on – are mainly kept up by myself'.[19] He also praised the good work done by the principal inhabitants of the parish to whitewash the parish cottages and form a committee to collect subscriptions 'as a fund for the relief of the sufferers and the distribution of nourishing food for the sick'. To this end he placed his 'purse at their disposal, begging they would draw upon it as they pleased'.

Perhaps surprisingly, the Earl was also extremely critical of the actions of the poor. He wished that they could be persuaded to 'the more active exertion of removing their own dungheaps' so that 'typhus or cholera' did not arise from 'their own neglect of common cleanliness'. Portarlington also attributed population growth in the parish to 'the reckless and early marriages of the people'. His preferred solution to this was not to increase the number of available houses but to encourage emigration. His fear that the building of cottages 'would only have encouraged the still more rapid increase of population' is understandable in an age when the poor rate fell heavily on the Earl's tenant farmers, a factor which drove down the value of farm rents. Furthermore, widespread poverty meant that only very low rents could be charged for new cottages, making their construction economically unattractive. Indeed, the Earl was actually in the process of demolishing older cottages rather than repairing or rebuilding them.[20] The tone of his letter makes clear his immense frustration that 'all efforts to induce the people to quit these overfilled habitations have proved fruitless'.

Osborne and St John did not, however, let such a defence go unchallenged. Osborne was particularly critical of the Earl's arguments against the building of cottages and sought to defend the poor, stating: 'The villagers may be wrong to marry early, but is this to justify the sole option to them of emigrating, or remaining to spend a half-savage life in falling houses?'[21] Furthermore, he argued, 'As to the filth of their own houses they have no convenience within reach for its disposal otherwise than about the ground around them. It is then unjust to accuse them in this matter'. Portarlington's treatment of the family of the suicide victim, Joseph House, was also scrutinised. Harper stated that House was at the time of his death in debt to the Earl in the sum of £11 10s 6d for coppice wood, but that as his widow continued the business 'his Lordship, on hearing of the sad event, immediately renounced his claim'. However, this prompted Revd St John to write his first letter to *The Times*, remarking 'How strange' it was that two months after that tragic event 'the poor widow has never received the least intimation of his Lordship's bounty!'[22] Not only that, but the estate was then seeking to retrieve the debt from House's brother and had written to him stating that if he did not pay 'he would be turned out of his cottage at a month's notice'. St John later acknowledged that he felt assured that Portarlington's intentions were 'most benevolent' and that the problem might lay in the failure of the estate bailiff to put them into action.[23] Whatever the detailed truth of this matter, it is clear that the writ of landed paternalism did not run smoothly in the village.

It is also clear that local government was little more effective in its response to the epidemic. The overseers and churchwardens of Hilton had direct control over the management of the parish houses, but, in the final letter to *The Times* on the Hilton case, they noted that the parish cottages were 'let to the poor occupants at a very low rent' which was 'not sufficient to keep them in good repair'.[24] They also had no authority to spend money from the poor rate to improve them.[25] Central government was seeking to encourage parishes to sell their property, wanting to channel relief to the poor through the deterrent effect of the workhouse. Despite this, the Hilton parish officers were reluctant to send poor homeless families to the union workhouse at Blandford. They stated that the poor had an 'utter aversion' to being placed there, not wishing to leave Hilton because of their attachment to their 'native home', and claimed that the cottages had been retained 'out of pure kindness to the labouring poor'. There was also a strong financial incentive arising from the greater cost of maintaining the poor in the workhouse, out of work and providing them with food and clothing, rather than allowing them some support to remain active within their own community. The overseers and churchwardens were not, therefore, acting entirely selflessly in retaining the cottages and their letter shows that by having them whitewashed, contributing to a subscription and arranging medical assistance they believed that they had fulfilled their obligations.

Greater potential for action lay in the hands of the local Board of Guardians, who had been given new powers by the Nuisance Removal and Diseases Prevention Act. Upon the complaint of two householders about any 'filthy and unwholesome' dwelling house, or any 'foul and offensive' ditch, drain, or privy, the Guardians could bring the case before a magistrate to issue a summons for the abatement

of the 'nuisance'.[26] On the introduction of the Act, the Guardians attempted to implement a series of inspections of each of the parishes across the Blandford union. However, the resulting action was extremely limited in nature and few prosecutions were made. The legislation itself meant that the Guardians could only react to complaints rather than taking direct preventative action. In that respect it reflected the manner in which the rights of private property had been vigorously defended in Parliament against what was seen by some as the threat of 'centralisation' eroding the ancient rights of Englishmen.[27] The parish officers held similar views, describing men such as Pigott, the Poor Law Inspector, as 'prying strangers'.[28] The actions of the Guardians were also limited at a local level by their devolution of power to parish-based committees consisting of the minister, parish officers and landowners.[29] These being the principal property owners and ratepayers of the parishes, who had to bear the cost of any improvement works, it is perhaps unsurprising that the resulting action was of a limited, short-term nature.

In conclusion, it is clear that the typhus outbreak at Hilton threw the spotlight onto a local tragedy, which, if it had not been for two Dorset clergymen would have gone unnoticed and unrecorded. The discussion that followed highlighted the paternalist expectations of the age: that in return for wealth, power and prestige the privileged would care for the poor and dispossessed in society. It also illustrated how far many people's experiences fell short of this ideal. It is important to remember that those with power and influence were making decisions with limited knowledge of the causes and treatment of epidemic disease. However, the link between such outbreaks and the accumulation of 'nuisances', effluvia and overcrowding had been observed and, together with concerns over morality, rising awareness was increasing the pressure for improved housing and sanitation. Nevertheless, arguments in favour of localism and landed paternalism meant that both central and local government lacked any compulsory powers to address a crisis of this nature which voluntary action had failed to resolve.

It is also noticeable that although the shocking events at Hilton were used to highlight these issues, public interest in the village faded away as quickly as it arrived. The publication of eleven letters in a national newspaper in less than three weeks was felt to be approaching over-exposure and the editorial on 14 November stated that that day's letter 'must be the last, unless another plague, or similar calamity should re-open the subject'.[30] Fortunately for the villagers the epidemic had exhausted itself and only one more person was to fall victim to the outbreak following this date. On 6 January 1849 40-year-old Ann House was buried, Revd St John recording in the register that she died from an 'internal abscess after Typhus Fever'.[31] Although occasional deaths from typhus continued to be recorded, Hilton did not again suffer an epidemic on this scale. However, other Dorset villages did: there were cholera outbreaks in Fordington and Charlton Marshall in 1854.[32] While arguments raged over the duties of landowners and the relationship between central and local government many more local tragedies were to unfold across the nation.

NOTES

1 Letter from Revd S.G. Osborne, *The Times*, 26 October 1848.

2 *Dorset County Chronicle*, 21 September 1848.

3 Dorset History Centre (DHC), PE/HIL VE 1. Hilton Vestry Minutes 1815–51; DHC BG/BF A/1/5 Blandford Board of Guardians Minutes, 1847–50.

4 National Archives (NA), MH12 2726. Letter from Revd St John of Hilton to Viscount Morpeth, 15 September 1848.

5 For an overview of public health legislation in this period see D. Fraser, *The Evolution of the British Welfare State*, Macmillan, Basingstoke, 1984, 72–7.

6 A.S. Wohl, *Endangered Lives: Public Health in Victorian Britain*, J.M. Dent & Sons, London, 1983, 45.

7 Letter from S.G. Osborne, *The Times*, 31 October 1848.

8 Wohl, *Endangered Lives*, 125–7.

9 The following details of the outbreak are taken from Revd St John's letter to Viscount Morpeth, 15 September 1848. NA, MH12 2726.

10 J. Marlow, *The Tolpuddle Martyrs*, Panther Books, St Albans, 1974, 40.

11 NA MH12 2726. Note by G. Pigott, 27 September 1848.

12 NA MH12 2726. Report by G. Pigott, 27 October 1848.

13 See A. Horsford, 'Sidney Godolphin Osborne, 1808–1889', *Proceedings of the Dorset Natural History and Archaeological Society* **98**, 1976, 15–24.

14 Letter from Revd S.G. Osborne, *The Times*, 26 October 1848.

15 D. Roberts, *Paternalism in Early-Victorian England*, Croom Helm, London, 1979, 25–9.

16 Letter from Revd S.G. Osborne, *The Times*, 26 October 1848.

17 *The Times*, 27 October 1848.

18 Letter from S.B. Harper, curate at Milton Abbas, *The Times*, 31 October 1848.

19 Letter from the Earl of Portarlington, *The Times*, 2 November 1848.

20 The accusation that Portarlington planned to demolish cottages was made by Revd St John in his letter to Viscount Morpeth, 15 September 1848, NA, MH12 2726. It is supported by the letter of S.B. Harper, the curate of Milton Abbas, to *The Times*, 31 October 1848.

21 Letter from Revd S.G. Osborne, *The Times*, 11 November 1848.

22 Letter from Revd St John, *The Times*, 4 November 1848.

23 Letter from Revd St John, *The Times*, 11 November 1848.

24 Letter from the overseers and churchwardens of Hilton, *The Times*, 14 November 1848.

25 The Poor Law Commissioners stated that they would not be 'justified in sanctioning any large outlay in the repair of such houses where there is a central workhouse'. *Tenth Annual Report of the Poor Law Commissioners*, 1844.

26 Nuisance Removal and Diseases Prevention Act, 1848, 11 & 12 Vict. c. 123.

27 The clearest example of such opposition can be seen in J. Toulmin Smith, *Local Self-Government and Centralization: The characteristics of each; and its practical tendencies as affecting social, moral and political welfare and progress*, John Chapman, 1851, 335–47.

28 Letter from the overseers and churchwardens of Hilton, *The Times*, 14 November 1848.

29 DHC BG/BF A/1/5 Blandford Board of Guardians Minutes, 1847–50.

30 *The Times*, 14 November 1848.

31 DHC PE/HIL RE 4/1, Hilton Burial Register, 1813–1901.

32 On the Fordington outbreak see Revd H. Moule, *Eight Letters to His Royal Highness The Prince Albert, as President of the Council of the Duchy of Cornwall*, London, 1855. Total deaths for each county are given in the *Report on the Cholera Epidemic of 1866, Supplement to the Twenty-Ninth Annual Report of the Registrar General of Births, Deaths and Marriages in England*, 1868.

Dr Martin Ayres

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 187–194

Dorset Archaeology in 2007

The contributions for 2007 are arranged by project type, and within those types by place alphabetically. This year's notes include reports on some work carried out in 2005 and 2006.

The collaborative role of the Local Planning Authorities and the Archaeological Office, Environmental Services, Dorset County Council, is acknowledged by all contributors in those projects arising from the planning process.

EXCAVATIONS AND SURVEY

NORDEN FARM, CORFE CASTLE

A fieldwalking and metal-detecting survey was carried out on two fields to the north of Corfe Castle, on Norden Farm, centred on NGR SY 958 825, in September 2007. This fieldwork was undertaken as a part of the Dorset County Museum Norden Project to further explore the site of a hoard of Late Iron Age staters and a Roman *patera* of the 1st century AD, discovered by metal-detectorists in 2004. The survey across the discovery sites was designed to map plough-zone finds exposed and disturbed by the ploughing of the pasture after a long ley. The processing of the finds is ongoing but a few preliminary observations can be made. There was a relatively restricted concentration of Late Iron Age coins in the southern part of the area. There were no 1st- and 2nd-century Roman coins recorded, suggesting a hiatus in site activity in the early Roman period. Small denomination Roman coins of the late 3rd- and 4th-century were more widely spread, particularly towards the north and west. Later Romano-British pottery was recorded in this same area, together with a spread of Romano-British building material and a wall footing just below the plough-zone.

Peter S. Bellamy and Peter J. Woodward
Terrain Archaeology and Dorset County Museum

EVALUATIONS

WYTCH FARM, CORFE

In total, thirteen evaluation trial trenches were excavated at various locations along the route of the proposed new pipelines and cables. All trench positions had been chosen to investigate magnetic anomalies identified by gradiometer survey, although several trench locations were altered to avoid possible buried ordnance. At two locations, west of Wytch Moor (SY 9805 8542) and East of Wytch Moor (SY 9846 8546), trenches revealed deep soil build up and deposits of ash and/or burnt clay that suggested significant burning had taken place in the immediate vicinity. Both locations are considered to have been used for salt boiling in the Middle Ages; the latter having been examined during the previous oilfield development in 1987. A small quantity of medieval pottery was recovered at each location. No other archaeological activity was identified, although a moderate quantity of post-medieval pottery was also recovered west of Wytch Moor.

P.W. Cox
AC archaeology

35–37 BLANDFORD ROAD, HAMWORTHY

An archaeological evaluation on the site of a proposed housing development at the rear of 35–37 Blandford Road, Hamworthy (SZ 0028 9025) was carried out by *AC archaeology* during February 2007. The site is located within the presumed circuit of the Hamworthy Roman fort and is currently gardens with parking bays to the rear of existing properties. The evaluation comprised the machine-excavation of two trial pits. Both contained the same sequence of soils. One was disturbed by a modern soakaway but the other contained a shallow linear gulley of probable Romano-British date, which contained fragments of early Romano-British pottery. No other Roman finds or features were present.

S. Cottam
AC archaeology

VILLAGE HALL SITE, HORTON

The Horton Chalbury Village Hall Committee contracted Bournemouth Archaeology to undertake geophysical surveys and evaluation of the site of the proposed new village hall (SU 0319 0750). Archaeological investigation was required because the site lies close to that of previously excavated Verwood Pottery kilns.

The geophysical surveys allowed a number of specific areas of the site to be targeted for evaluation. Five trenches were set out. Trench 1 (4 × 1m) produced post-medieval/modern brick, tile, flint and stone fragments; probably demolition debris from an unknown source. Trench 2 (3 × 1m) also contained demolition debris, albeit in smaller quantities. Trench 3 (4 × 1m but extended by 2m) contained a spread of medieval sandy ware pottery, close to what might have been the edge of a monastic pond associated with the nearby Horton Abbey. The pottery appeared to be an isolated deposit and there was no evidence of an associated feature. Trench 4 (3 × 1m) produced only unstratified demolition rubble from the topsoil. Trench 5 (4 × 1m) included only random demolition rubble.

The drawing, recording, photographic and material archives reside at Bournemouth University.

Bronwen Russell and Mark Shattock
Bournemouth Archaeology

BURNGATE PEARCE'S QUARRY, LANGTON MATRAVERS

A rapid assessment and recording was carried out by Terrain Archaeology in June 2007 of the surviving remains at the former quarry known as Burngate Pearce's, Langton Matravers, Purbeck (NGR SY 9875 7875). This was undertaken in advance of the proposed development of the site for a Stone Work Training Centre by the Purbeck Keystone Project. The quarry was opened between 1841 and 1887 and comprised a single mine shaft with a group of five buildings surrounding an open space. The quarry went out of use some time before 1928. The site was subsequently adapted for agricultural use. Parts of three stone buildings survive and their crude construction is typical of quarr buildings of the late 19th century. They incorporate a number of stones with wedge-pits and other marks of former quarry working methods. A number of buildings around the head of the shaft and the capstan are no longer extant, so it is far from a complete example of a Purbeck quarr.

Peter Bellamy
Terrain Archaeology

MANOR FARM QUARRY, MELBURY ABBAS

Following a trench evaluation during September 2006, five additional evaluation trenches totalling 60m in length and 2m in width were opened on this site (SY 8591 2031) by *AC archaeology*. The purpose was to determine whether further archaeological features were present in the area around those earlier trenches, which had produced evidence of Bronze Age activity. Of the five new trenches opened only one proved to have any archaeological remains of significance, in the form of one linear feature and one sub-circular feature of Middle to Late Bronze Age date.

P. Martin
AC archaeology

CHURCH OF ST PETER, PIMPERNE

An archaeological evaluation was carried by Bournemouth Archaeology at St Peter's Church, Pimperne (ST 39037 10941) on the site of a proposed community building. Two trenches (both 2.0 × 1.0m) were excavated on the northern side of the church. Trench 1 contained fragments of adult human bone and the disarticulated remains of at least two neonatal human skeletons, although no formal grave cuts were identified. Trench 2 contained a section of brick and flint wall; the possible remains of the northern transept that was destroyed when the church was rebuilt in the 1870s.

Harry Manley
Bournemouth Archaeology

THAMES STREET, POOLE

An archaeological evaluation by means of four trenches, each 2m × 2m, was undertaken at the Mansion House site, 5–11 Thames Street, Poole (SZ 007 903). Thames Street is likely to mark the edge of the early medieval shoreline, with reclamations from the late 14th or 15th century onwards progressively extending the land westwards across the present site. In each case modern deposits, including the remains of backland structures, overlay post-medieval soil horizons which, by comparison with the fuller sequence excavated on the adjoining Foundry site, can be identified as dating to the 17th–19th century. Earlier levels, including late medieval foreshore and reclamation deposits, may lie beneath the levels examined, but will not be disturbed by works extending to depths of at least 1.20m below present ground surface.

S. Robinson
AC archaeology

WESTON ROAD, PORTLAND

An archaeological evaluation on the site of a proposed housing development on land between 61A and 65 Weston Road, Portland (SY 6887 7096) was carried out by *AC archaeology* in April 2007. The site is located within an area defined as being of Archaeological Potential in the Weymouth and Portland Borough Local Plan and south of an area containing linear boundaries known as lawnsheds. The evaluation comprised the machine-excavation of two trial trenches. Both contained the same sequence of soils, comprising topsoil overlying a thick deposit of clay subsoil over limestone bedrock. No archaeological features or pre-modern artefacts were discovered.

S. Cottam
AC archaeology

MAMPITTS ROAD, SHAFTESBURY

An archaeological evaluation for a proposed redevelopment on land at the Former Church of England First School, Mampitts Road, Shaftesbury, Dorset (SY 8715 2290) was carried out by *AC archaeology* during September 2007. The evaluation comprised eleven trenches totalling 165m in length; each trench 1.8m wide and representing a 2% sample of the proposed development area. Archaeological activity was limited to two trenches and included two linear features appearing to represent former boundary ditches, one of which contained pottery of medieval date. A small quantity of artefacts was recovered from the topsoil of some of the remaining trenches, including ceramic building material and pottery of post-medieval date, and a single flint core of probable late Neolithic date.

S. Robinson
AC archaeology

APRIL COTTAGE, VERWOOD

An archaeological evaluation and subsequent excavation by *AC archaeology* on the site of the former Crossroads pottery, Verwood (SU 08634 09083) revealed the remains of three kilns with their associated firing sheds, which until recently had lain under April Cottage, a bungalow demolished in advance of the construction of new shops and offices. In addition to the kilns, nine pits and two former boundary ditches were encountered along with a substantial quantity of pottery. A publication report is currently being undertaken and will be published in due course.

J. Whelan
AC archaeology

GOULD'S HILL, WINTERBORNE ST MARTIN

Archaeological evaluations by gradiometer survey and trial trenching were undertaken in March and September 2007 respectively, on the site of the proposed new Gould's Hill Reservoir. A number of magnetic anomalies of potential archaeological origin had been identified by geophysical survey and were targeted for investigation, along with a number of control trenches in 'blank' magnetic areas. The results revealed that most features were either of natural periglacial origin or resulted from modern disturbance, possibly associated with the construction of the telecommunications facility. A large subsoil feature to the east of the survey areas may be of archaeological origin, but could be a natural hollow that was being infilled during the prehistoric period. A small quantity of worked flint was recovered from this feature, including a fragment of patinated Neolithic polished flint axe.

S. Robinson
AC archaeology

WORTH MATRAVERS, DOWNS QUARRY

An archaeological evaluation was carried out by Terrain Archaeology in January 2007 of the proposed site of a new quarry at Downs Quarry to the west of Langton Matravers (NGR SY 9782 7905). Six trenches were excavated in two fields to the north of the Swanage to Kingston B0369 road. This was the site of the Late Iron Age and Roman settlement and industrial site known as Gallows Gore West, which was investigated during quarrying activity in the 1930s and 1940s.

The results of the evaluation showed that the whole of the area, except for the northern end of the north field was disturbed by former quarrying activity and no archaeology survives, other than a scatter of finds in the topsoil. At the northern end of the site, the remains of two drystone walls were found. These walls were associated with scatters of stone rubble and burnt stone, which included a small amount of abraded Late Iron Age pottery. These walls are probably the remains of field walls, or perhaps part of an enclosure around the Iron Age/Roman site of Gallows Gore West.

Steven Tatler
Terrain Archaeology

WATCHING BRIEFS

WOODBURY HILL, BERE REGIS

An archaeological watching brief was carried out by Bournemouth Archaeology at Woodbury Hill, Bere Regis (SY 8563 9480) during the excavation of a trench for an electricity cable through the area of the Scheduled Ancient Monument (No. 28386). Only two features were observed – a possible bank and an associated ditch on the north side of the hillfort. These were probably the remains of the Iron Age rampart. Elsewhere, only two finds of significance were recovered: a possible Roman coin and a medieval token.

Harry Manley
Bournemouth Archaeology

BLANDFORD CAMP, BLANDFORD FORUM

Oxford Archaeology undertook a watching brief and trenched evaluation in 2007 at Blandford Camp (ST 9219 0927) on behalf of the Defence Estates, Environmental Support Team (Historic Environment) of the Ministry of Defence. The watching brief and evaluation revealed well-defined linear features, ditches and a tunnel that had been cut into chalk and rapidly backfilled. These are likely to be shallow ditches or practice trenches constructed during the First or Second World Wars. One practice trench showed evidence of a possible fire-step, cut into its eastern side. If it is a fire-step, to enable observation over the breastwork, it would be located on the wrong, uphill, side. Artefacts recovered from the fieldwork included barbed wire and a single .303 cartridge case from another practice trench. The case was produced between 1897–1903, after which this type of hollow-point round was banned by the Hague Convention. The round would have been retained as stock and used for target shooting. More practice trenches dug in the surrounding area of the camp still survive as recognisable earthworks.

Timothy Haines and Edward Biddulph
Oxford Archaeology

NEW LINK ROAD, BOVINGTON CAMP

A watching brief was carried out in 2005 at Bovington Camp (SY 837 897) for Debut in advance of the construction of a link road for the purposes of tank training. The area of excavation measured 234m × 11m and was excavated to between 0.48 and 0.6m below ground level. The fieldwork revealed no remains of archaeological significance, nor any evidence of truncation that may have occurred as a result of previous land use, such as ploughing.

Kate Wheaton and Edward Biddulph
Oxford Archaeology

MILLER'S FARM, CHARBOROUGH

Groundworks for a development east of Miller's Farm, Charborough (SY 914 975), revealed two adjacent ring ditches. Ring Ditch 1 had a diameter of some 13m and comprised a small ditch or gully encircling a shallow linear ditch (not necessarily associated) but no other features. The arc of its eastern side had apparently been adjusted to avoid the adjacent Ring Ditch 2, which had an external diameter of 9m, a more substantial ditch but no internal features. No finds were recovered from either feature, and any interpretation of date and function therefore depends on a consideration of their morphology. The dimensions of Ring Ditch 2 would be consistent with that of a small Bronze Age round barrow, while Ring Ditch 1 is more reminiscent of gullies surrounding late Bronze Age or Iron Age timber structures.

J. Hawkes
AC archaeology

NEW CAR PORT, 9 NORTH STREET, CHARMINSTER

An archaeological watching brief was carried out by Terrain Archaeology in August 2007 during the ground-

works associated with the erection of a new car port at the rear of 9 North Street, Charminster (NGR SY 678 927). No features or deposits of archaeological interest were observed.

Steven Tatler
Terrain Archaeology

NEW COTTAGE, 9B NORTH STREET, CHARMINSTER

An archaeological watching brief was carried out by Terrain Archaeology in October 2007 during the groundworks associated with the erection of a new cottage at 9B North Street, Charminster (NGR SY 678 927). No features or deposits of archaeological interest were observed. The site lay behind the North Street frontage within a former garden, which had been built up to form a car park in the later 20th century.

Steven Tatler
Terrain Archaeology

WATER MAIN REPLACEMENT, BARNSTON CROSSROADS, CHURCH KNOWLE

An archaeological watching brief was carried out by Terrain Archaeology in January 2007 during Water Main Replacement work at Barnston Crossroad, Church Knowle (NGR SY 9298 8143). The topsoil strip of the compound area, which lies adjacent to an area of earthworks at Barnston Farm, was observed but no features or deposits of archaeological significance were found. The replacement water main ran along the road and no observations were required during trenching.

Steven Tatler
Terrain Archaeology

TERMINUS BUILDING DEVELOPMENT, HENGISTBURY HEAD

An archaeological watching brief was carried out by Terrain Archaeology in June and November 2007 during groundworks associated with the development of the area around the Terminus Building at Hengistbury Head, Dorset (NGR SZ 1730 9081). A small, undated E–W linear feature, possibly a boundary ditch, was observed at the southern end of the site. Another, much larger, L-shaped feature was also exposed. No dating evidence was recovered from this feature but the character of the redeposited natural sand and gravel fill suggests a relatively recent date. This feature may possibly be associated with World War II activity in the area.

Steven Tatler
Terrain Archaeology

WATER MAIN REPAIR, POOR LOT, KINGSTON RUSSELL

Terrain Archaeology monitored the repair of a burst water main adjacent to the Poor Lot Barrow Group, Kingston Russell (NGR SY 5878 9084) in May 2007. The works revealed a layer of colluvium 0.5m deep, but no archaeological features or finds were exposed.

Peter Bellamy
Terrain Archaeology

NEW QUARRY, SEA SPRAY FIELD, ACTON, LANGTON MATRAVERS

An archaeological watching brief was carried out by Terrain Archaeology in June 2007 during topsoil stripping for a new quarry in Sea Spray Field to the south of Acton near Langton Matravers, Purbeck (NGR SY 992 777). No archaeological features other than stone-filled field drains of probable 18th–19th-century date were revealed. However, a significant quantity of worked flint and Late Iron Age/Roman pottery was found in the topsoil. The character of the flint assemblage suggests a late Neolithic/Early Bronze Age date. It is unclear whether the Late Iron Age/Roman pottery scatter represents the remains of some activity that has left no sub-surface evidence, or whether the focus of the site lies just beyond the area of the watching brief. The limited evidence from the pottery suggests that it may be contemporary with the industrial and settlement site found at Blacklands, just to the west of the present site.

Steven Tatler
Terrain Archaeology

QUARRY EXTENSION, BLACKLANDS FIELD, ACTON, LANGTON MATRAVERS

An archaeological watching brief was carried out by Terrain Archaeology during topsoil stripping for an extension to a quarry in the southeast part of Blacklands Field to the south of Acton near Langton Matravers, Purbeck, Dorset (NGR SY 9915 7775). Two stone-filled field drains were revealed, but no other features or deposits of archaeological interest were found. The results of this watching brief suggest that the Iron Age and Roman activity discovered in the late 1940s is confined to the western part of the field.

Steven Tatler
Terrain Archaeology

SHERBORNE LANE, LYME REGIS

In May 2007 Guy Ottewell let Lyme Regis Museum know that garden works at 2 Sherborne Lane were revealing structures. No. 2 was the manse to the adjacent Baptist Chapel, and was built in 1927 back from the original building line of this very narrow part of Sherborne Lane. A trench, to the front of the present house, revealed lias paving beneath garden soils, almost certainly the floor of one of the rooms in the earlier house. At the back of the present house were parts of lias walls probably representing terracing and steps associated with the earlier house. No pottery or other artefacts were recovered. Photographs and notes are at Lyme Regis Museum.

Jo Draper
Lyme Regis Museum

NEW FIRE STATION, MARSHES END, POOLE

An archaeological watching brief was carried out by Terrain Archaeology in September 2007 on the site of the new Marshes End Fire Station, Poole (NGR SZ 005 930). This area was formerly part of the mudflats at the northern end of Holes Bay. The land was reclaimed in the 1980s for the construction of the present Holes Bay Road (A350) and Dorset Way (A3049). The groundworks only exposed recent reclamation deposits.

Steven Tatler
Terrain Archaeology

Figure 1: The earlier house on the site of 2 Sherborne Lane (left). These houses are difficult to date, but may be 17th century with later fenestration. Photo: Lyme Regis Museum

POOLE POWER STATION SITE, RIGLER ROAD, HAMWORTHY, POOLE

An archaeological watching brief was carried out by Terrain Archaeology in October 2007 during the excavation of geotechnical test pits on the site of the former Poole Power Station, Hamworthy, Poole (NGR SZ 002 902). Only one test pit on the southern edge of the site was deep enough to penetrate below the reclamation deposits for the power station. This revealed the top of the natural beach deposits. No archaeological features or deposits were observed.

Steven Tatler
Terrain Archaeology

NEW RESIDENTIAL DEVELOPMENT, GRANGECROFT ROAD, WESTON, PORTLAND

An archaeological watching brief was carried out by Terrain Archaeology between March and June 2007 during the groundworks associated with the erection of three blocks of flats at Grangecroft Road, Weston, Portland (NGR SY 6808 7120). No features or deposits of archaeological interest were observed. Most of the site appears to have been previously disturbed, with large spreads of modern levelling material being observed across the site.

Steven Tatler
Terrain Archaeology

MOORFIELD ROAD, PORTLAND

Archaeological monitoring was carried out by *AC archaeology* during ground clearance and reduction of levels associated with the construction of nine new dwellings on land at Moorfield Road, Easton, Portland, Dorset (NGR SY 694 718). A depth of made-up ground was removed to the level of the natural limestone. No evidence for any archaeological features or deposits was present.

S. Cottam
AC archaeology

PERRYFIELD QUARRY, PORTLAND

Archaeological monitoring was carried out by *AC archaeology* during topsoil stripping associated with the construction of a new haul road and extension at Perryfield Quarry, Easton, Portland, Dorset (NGR SY 693 711). No evidence for any archaeological features or deposits was present.

J. Whelan
AC archaeology

NEW FRENCH DRAIN, ST NICHOLAS CHURCH, SYDLING ST NICHOLAS

An archaeological watching brief was carried out by Terrain Archaeology between October and December 2007 during the groundworks associated with the construction of a French drain and associated works at St Nicholas Church, Sydling St Nicholas (NGR SY 6300 9928). Parts of eighteen articulated burials were encountered and recorded. At the north-east corner of the nave, a small area of flint footings was also observed.

Rebecca Montague
Terrain Archaeology

PROPOSED RESIDENTIAL DEVELOPMENT, DOLLIN'S LANE, WAREHAM

An archaeological watching brief was carried out by Terrain Archaeology in February and May 2007 during the groundworks associated with a proposed residential development at Dollin's Lane, Wareham (NGR SY 9233 8758). No features or deposits of archaeological interest were observed.

Steven Tatler
Terrain Archaeology

REAR OF 20 WEST STREET, WAREHAM

An archaeological watching brief was carried out by Terrain Archaeology in August 2007 during the groundworks associated with the erection of two dwellings at the rear of 20 West Street, Wareham (NGR SY 9221 8735). Although the site lies within the historic core of Wareham, very little evidence for intensive occupation was found. A small number of possible medieval pits and post-holes were found, but dating evidence was lacking. These features were sealed by a deep deposit of garden soils, which attest to a long period of occupation, but very little material remains were recovered. A small number of post-medieval and modern features, including two brick-lined wells and brick-lined pits, were found. The general impression gained is that this area, behind the street frontage has been largely used for gardening.

Steven Tatler
Terrain Archaeology

PROPOSED DWELLING AT 116 SUTTON ROAD, SUTTON POYNTZ, WEYMOUTH

An archaeological watching brief was carried out by Terrain Archaeology in February 2007 during the groundworks associated with the construction of a new dwelling at 116 Sutton Road, Sutton Poyntz (NGR SY 7065 8388). The site had been previously terraced and no features or deposits of archaeological significance were found.

Steven Tatler
Terrain Archaeology

NEW FOOTBRIDGE, SANDSFOOT CASTLE GARDENS, WEYMOUTH

An archaeological watching brief was carried out by Terrain Archaeology in October 2007 during the groundworks associated with the erection of a new footbridge at Sandsfoot Castle Gardens, Weymouth (NGR SY 67477 739). The new bridge was built on the existing piers of the former footbridge, which crossed the bank and ditch of the 17th-century earthwork bastion to Sandsfoot Castle. There was only limited ground disturbance and no features or deposits of archaeological significance were observed.

Steven Tatler
Terrain Archaeology

FINDS REPORTED TO THE PORTABLE ANTIQUITIES SCHEME IN 2007

Ciorstaidh Hayward Trevarthen (Finds Liaison Officer)

Introduction

The Portable Antiquities Scheme has been operating in Somerset and Dorset since 1999. The first pilot schemes were established in 1997 and there are now Finds Liaison Officers (FLOs) recording discoveries of archaeological material over the whole of England and Wales. Its aims are:

- To advance knowledge of the history and archaeology of England and Wales by systematically recording archaeological objects found by the public.
- To raise awareness among the public of the educational value of archaeological finds in their context and facilitate research in them.
- To increase opportunities for active public involvement in archaeology and strengthen links between metal-detector users and archaeologists.
- To encourage all those who find archaeological objects to make them available for recording and to promote best practice by finders.
- To define the nature and scope of a scheme for recording portable antiquities in the longer term, to access the likely costs and to identify resources to enable it to be put into practice.

From April 2006 local partners and the Department of Culture, Media and Sport have funded the Scheme, through the Museums Libraries and Archives Council. Because of the way the Scheme has developed in Somerset and Dorset, there are two Finds Liaison Officers (FLOs) for the two counties. Naomi Payne is based in Somerset and Ciorstaidh Hayward Trevarthen in Dorset, but both FLOs record Dorset finds (as do FLOs in other counties). In the period of reporting, finds were also recorded by John Davey (temporary Finds Liaison Officer) and volunteers Madeleine Knibb and Philip Knibb.

Overview

In 2007, 880 finds were recorded from Dorset in 741 Portable Antiquities Scheme database records. In addition to these finds, many more objects were seen and identified, but were too recent (post-1650) or otherwise unsuitable for recording on the database. The finds were discovered by several means; 75% by metal detecting, 20% through field-walking and 5% were chance finds or were found during other activities such as gardening or agricultural work.

The objects recorded date from the Mesolithic onwards. Just under 1% of the total finds were of Mesolithic or Mesolithic to Neolithic date, 5% were Neolithic, 7.5% were Neolithic or early Bronze Age, 6% were Bronze Age, 1% were Iron Age, 39% were Roman, 2% were early medieval, 17% were medieval, 6% were medieval to post-medieval and the remaining 15% were post-medieval, while 0.5% were modern or not closely datable. Copper alloy finds account for 56% of the material, with 4% of other base metals, 13% of precious metals, 8% of pottery and other ceramics, and 19% of worked stone and flint. There was one object of glass

The items that follow have been selected for more detailed reporting because of their relative rarity in Dorset. All three finds date from the 11th century, have zoomorphic decorative elements and are from North Dorset parishes. The PAS database reference number is given for each find and the records and colour images can be accessed on the database website (see http://www.finds-database.org.uk).

An Early Medieval stirrup-strap mount from Charlton Marshall

(DOR-41F233)

A cast copper alloy triangular mount with zoomorphic decoration and niello and wire inlay. The mount measures 49.12mm × 27.64mm × 7.37mm and weighs 21.03g. The front of the mount is decorated with lobed tendrils and moulded zoomorphic elements of the Viking Ringerike and Urnes styles. These elements are arranged symmetrically around a vertical axis. At the apex is a zoomorphic head terminal facing upwards and from which several lobed tendrils loop downwards along the sides of the mount. Flanking the base are two smaller zoomorphic heads which project downwards. These have prominent snouts and ears and a single front limb. From their bodies, and running along the side of the face of the mount, each has a sweeping wing which extends to meet the upper tendrils and ends in a lobe. On the flat face of the mount between the wings is a small, sub-triangular area of niello and wavy wire inlay. Evidence of the means of attachment for this object come in the form of a right-angled, backward projecting flange, two circular rivet holes between the lower heads and a single, larger circular hole at the apex below the upper head. The flange and the two lower holes all retain traces of iron corrosion. This is an example of a Williams Class A, type 8 stirrup-strap mount and dates to the second half of the 11th century (Williams 1997a, 48, figs 32 and 33). Such mounts are generally interpreted as having been used to attach stirrup leathers to the apex of an iron stirrup (*ibid.*, 2–7). Another, less well-executed and less well-preserved example of this type of mount was also found in 2007 at Pamphill (DOR-532796).

Figure 1: An early medieval stirrup-strap mount from Charlton Marshall (DOR-41F233) (Scale 1:1)

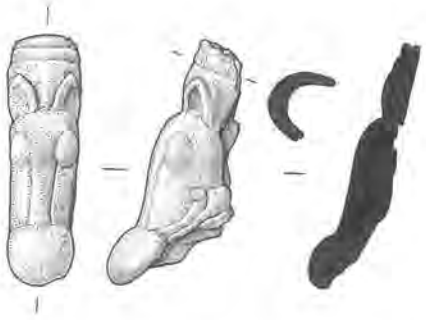


Figure 2: An early medieval stirrup terminal from Tarrant Monkton (DOR-43AA51) (Scale 1:1)

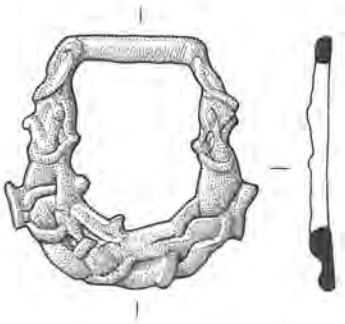


Figure 3: An early medieval buckle frame from Tarrant Hinton (DOR-D2AAA0) (Scale 1:1)

An early medieval stirrup terminal from Tarrant Monkton (DOR-43AA51)

A cast copper alloy terminal of zoomorphic design. It measures 34.7m by 30.75 mm by 9.54mm and weighs 10.97g. The terminal is hollow backed and is in the form of a beast's head with prominent eyes, large, pointed ears and an elongated, bulbous snout. There is a moulded ridge along the middle of the snout and its sides are decorated with a flowing lobe-ended tendril on each. Above the ears is a transverse ridge or collar. The hollow back retains traces of iron from its attachment to an iron stirrup arm. This would have been one of a pair of mounts decorating a late 11th-century stirrup. As such it is contemporary with DOR-41F233 above and associated with such objects in its use. An illustration of such mounts *in situ* on a stirrup can be seen in Williams 1997a, 7, fig. 4. This example is similar to those illustrated in figure 4 in Williams 1997b, 2.

An early medieval buckle frame from Tarrant Hinton (DOR-D2AAA0)

A cast copper alloy buckle frame, missing its pin, measuring 33.32mm by 33.50mm by 1.14mm and weighing 10.21g. An elongated D-shaped, single loop buckle frame. The sides and outer edge of the frame are cast with Urnes style decoration. This comprises an asymmetrical design of sinuous interwoven beasts. The heads of the beasts face backwards and are set at the sides and nearest the bar. They have prominent eyes and snouts. The elongated bodies are wound around the frame in a complex interwoven pattern. The back is undecorated and slightly concave. The bar is slightly off-set from the frame and has a rectangular cross section. Dating from the second half of the 11th century, this buckle is contemporary with the two other finds described. (Identified by Dr Kevin Leahy.)

Acknowledgements

I am very grateful to Kevin Leahy for his comments on the buckle. The illustrations are by Jane Read.

BIBLIOGRAPHY

Williams, D., 1997a *Late Saxon Stirrup-Strap Terminals: A Classification and Catalogue*. Council for British Archaeology Research Report **111**. York.

Williams, D., 1997b 'Stirrup terminals', *Finds Research Group Datasheet* No. 24.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 195–215

The Dorset County Boundary Survey

The Dorset County Boundary Survey was launched in April 2006 and the first report published here in Vol. **128**, *137–38. In November 2007 members of the Survey, in association with the Dorset Local History Group, held a Day School to explore various aspects of the boundary as seen at present, to report on recent findings and to identify some of the future potential of this thought-provoking exercise which brings together the disciplines of Natural History and Archaeology. The day was chaired by Roy Canham and the Keynote Lecture was given by Prof. James Campbell on 'Shires and their Boundaries'. Published here are papers and notes based on those given by James Campbell, Katherine Barker, Graham Hoddinott, John Newbould, and Iain Hewitt. Also included here is a note by Mark Ford on the proposal to set up a digital boundary atlas. Papers were also given by Bill Putnam on the Durotriges and the earliest Dorset boundary; see his recent* Roman Dorset *(2007) and by Bruce Eagles on 'Romans, Britons and Saxons on the eastern bounds of Dorset', whose work is in preparation.*

Katherine Barker

Shires and their Boundaries

James Campbell

The following paper is based on the lecture given by Professor Campbell on 17 November 2007

It may sound odd, but it is true; Dorset is older as a unit of administration and allegiance than any state in Europe. It is first mentioned in the *Anglo-Saxon Chronicle* under the year 840. It says: 'And the same year ealdorman Aethelhelm with the people of Dorset fought against the Danish army and for a long time put the enemy to flight; and the Danes had possession of the battlefield and killed the ealdorman'.

Of the ancient shires of Wessex, three others appear in similar circumstances at about the same time, led by an ealdorman and providing a force to resist Vikings: Devon, Wiltshire and Somerset. Hampshire appears earlier, in 757. There is evidence to suggest that the West Saxon shires are earlier still, and that the shires and ealdormen, mentioned but not named in the laws of King Ine *c.* 700 correspond to those mentioned later in the *Chronicle*.

How far did the shires mentioned in the *Chronicle* and described in detail in Domesday Book relate in more than name and general location to those familiar in later centuries, and still, largely, today? The Dorset we know, and as we know it, was first mapped *c.* 1600; John Speed's county map appeared in 1610.

How would the unfortunate ealdorman's area of authority in his unhappy campaign in 840 correspond to what Speed mapped? We can but guess: no surprise. But *surprise*: two centuries later, we *know*. Domesday Book of 1086 records England, village by village, manor by manor in such detail that it is easy to place the shire boundaries precisely. Domesday Dorset is Speed's Dorset, in detail. It is true, and truly remarkable that of all the thirty-three shires of Domesday their boundaries were very largely what they remained for centuries, and to a notable, even moving, extent now.

The map by Caroline and Frank Thorn in the Phillimore edition of *Domesday Book* for Dorset shows the boundaries of western Dorset as they were in 1086 with indication of changes made up to 1974. You will notice two areas in particular where Dorset had acquired land which had been part of Devon or Somerset. These changes had not come about by 1610 – they belong to the 19th century. Similarly with the Somerset enclave within Dorset: there in 1086, still there 525 years later.

In the study of boundaries to which the present conference relates I'm sure it will be found that most of the explanations are of boundaries already there in 1086 and which thereafter for centuries acquired an almost geological stability.

Although the Domesday shires had, by 1066, been worked into a comprehensive system, they had diverse elements. Let me schematise. First, we have the shires of old Wessex already mentioned, to which to add a rather special case, Berkshire. Second, the shires which represent formerly independent kingdoms, conquered or absorbed by West Saxon kings between the 8th and the 10th century: notably Kent, Sussex, and Essex. Third, the shires of the Midlands, were acquired by those kings in the late 9th and 10th centuries.

The map of the Midland shires is striking; they are neatly laid out and it is most remarkable how many of them are laid out with a river as their spine. This was a world which would see a river more as artery than boundary. The neat shires of the Midlands present other contrasts to their West Saxon counterparts. Before, considerably before 1066, all the shires were divided into clearly defined sub-units, in most shires called 'hundreds', but in some of those formerly under Danish rule called 'wapentakes'. In the Midland shires such sub-units, however named, were neatly laid out as part of an integrated system whereby their uniform hidage assessments added up to produce a round number for the shire as a whole: orderly integration was characteristic of late Anglo-Saxon government. Shires and hundreds were not only judicial and military units. They were also fiscal units.

What may account for such a contrast between north and south of the Thames? One may surmise that it was something like this. The term 'hundred' and with it the

hundredal system of control and jurisdiction were introductions of the late 9th and the 10th centuries. South of the Thames it had to be made to conform to existing arrangements and privileges. North of the Thames the men who organised the new English state had something more of a blank sheet on which to exercise their altogether remarkable powers and talents. Thus we note that Norfolk presents us with 36 hundreds, Hampshire with 42 and Dorset with 29. And Dorset is less than half the size of Norfolk and with only one quarter of the Domesday population. The numerous hundreds of Dorset reflect conformity and adjustment to what was already there.

The theme of our present meeting is boundaries; and that is my next concern. There is no comprehensive study of the boundaries of shires, though the theme has – of course – been touched on in many areas and often in good detail, as in volumes of the *Victoria County History*. The subject has the merit of being no less compassable than intriguing. Because we know the Domesday boundaries, it is possible to examine the nature and causes of their lines and eccentricities. And these form the foundation, a firm foundation, for the study of later changes. Let me give three instances of the kind of problem which arises. The first is solvable. The second has not been solved for certain. The third can lead one to serious, I would say seriously appreciative, thoughts about the long-lasting good effects of the dynamic creativity of the Anglo-Saxon state.

The first problem is this. There is an intense confusion of boundaries at the Domesday conjunction of Worcestershire, Gloucestershire and Warwickshire. At first glance it looks like an unholy muddle. On closer inspection one can see how to argue that it isn't a muddle at all; and even if it is a muddle, it is not an unholy one, but a holy one. What we have here is a scheme for keeping the estates of a great monastery within one shire: those of the bishopric of Worcester within Worcestershire; those of the great Gloucester Abbey within Gloucestershire. You find the same thing on other boundaries. In 1086 the two south-west Dorset manors of Chardstock and Stockland formed virtual 'islands' in Devon; Chardstock was held by the monks of Sherborne Abbey and Stockland was held by Milton Abbey. In each case, these two great abbeys were able to keep their estates within one shire. In 1086 Holwell formed a small enclave of Somerset in north Dorset. Holwell in Blackmore comprised an outlying estate of the royal manor of Milborne [Port] in South Somerset. Apparent anomalies of the kind just discussed were generally sorted out and enclaves of one shire within another commonly disappear by Act of Parliament in the 19th century. For Dorset these were listed and written up in *Somerset and Dorset Notes and Queries* of 1906.

The boundary complications just discussed reflect a wish, characteristic of 10th-century government, to organise as far as possible on shire lines: thus there was an incomplete effort to re-organise episcopal sees on a shire basis in the early 10th century.

We ought to consider the long history of the shires from Anglo-Saxon times from three angles. First, as a key element in the creation and maintenance of a powerful state. Second, as the expression of local communities, in significant ways self-governing. Third, and by no means least, the integration of these two sets of circumstances.

If we ask why from 1789 the French and others had revolutions while the English did not, much of the answer lies in the shire system. The point may seem a forced one. Let me defend it by drawing a contrast between English government and French in – say – 1780. Characteristic of French government, and above all of French provincial government, was complexity and variety. Thus some provinces had their own judicial assemblies, the *parlements*, other did not. Some had one set of legal customs, some another. France had a heterogeneous provincial quality which involved endless inefficiencies and, only by a superficial paradox, made the actions of the central authority harsher and more hardly felt. By contrast, what we see in England are qualities not always thought of as characteristically English: uniformity and order. The forty English shires varied in size, but, if one excludes Rutland not outrageously so. More important, each had almost the same administrative apparatus: sheriff, JPs, Lord Lieutenant. What went for one could go for all; it was easy to legislate for the country as a whole in ways not possible in France. The uniform system of local administration involved both local self-government and an integrated involvement in central government through the shire representatives to an extent impossible in France.

Not the least extraordinary thing about the uniformity and order of the English shire system is that these qualities derive from its Anglo-Saxon past, from that capacity for large-scale organisation and re-organisation which belonged not to the post-Conquest generations, but to the pre-Conquest generations. The state which William the Conqueror conquered was tightly organised and centralised. That is the principal reason for his securing his conquest so largely on the foundation of one battle.

The shire and above all the shire court were not mere instruments of government, but also of community representation. It is in this regard that 19th-century historians, above all Stubbs, saw these institutions as fundamental in English development. They saw the shire court as expressive of a Germanic tradition of freedom such that a significant proportion of the free population participated in the exercise of justice and administration. The continuity of this institution through and beyond the Conquest was seen as the foundation of parliamentary government because as the House of Commons developed in the 13th century its most important element was that of the shire members elected by the shire courts. Stubbsian views can to some eyes and in many circles seem anachronistically crude and wrong. Myself I find it hard to differ from them.

And it has to be common ground that local self-government on a nationally uniform and continuous basis was characteristic, almost uniquely, of England for many centuries.

The status of shires as communities was enhanced, almost created, by intermarriage among the gentry whose social intercourse was enhanced by the meetings inevitably associated with shire business. The strongest indication of shire consciousness from the later 16th century are the appearance of county histories, beginning with Lambarde's *Perambulation of Kent* (1576) and a little later the county maps of Saxton and Speed. John Hutchins' *History of Dorset* was first published in 1715. There is something about the very regularity of the pattern of production: *county* histories, *county* maps, which tells one a great deal about the English state and about English society. And in the course of the 19th century there are founded *county* societies for the promotion of the arts and the sciences; the Dorset Natural History and Antiquarian Field Club published the first volume of its annual *Proceedings* in 1877.

The sense of shire and its integration with loyalty to the state was particularly enhanced by the association of regiments with counties. As I have pointed out, the military associations had been important from the very beginning of shires. They were revived by the introduction of the militia system of 1752, and from 1782 by the adoption of the custom of giving regular regiments county associations as well as numbers. The county of Dorset in the 19th century is eloquently expressed in the career of John Clavell Mansel-Pleydell who received a Commision into the Dorset Yeomanry in which he served for 30 years. Qualified in law, he also served as a Dorset JP. He played a leading part in the founding of the Dorset Field Club, being elected its first president in 1875 and was appointed High Sheriff in the following year. He is remembered for his philanthropic endeavours on the Whatcombe Estate to which he succeeded on the death of his grandfather. With his *Flora of Dorset*, *Birds of Dorset* and *Conchology of Dorset* he also played a seminal role in the founding and promotion of county-based scholarship. The Dorset Natural History and Archaeological Society awards an annual essay prize in his name.

In this, and other respects, English shires resemble little countries. Like countries, they came into existence for reasons to do with ordered government and to sustain power; but their long history and the nature of their organisation has made them sources of identity and identification, of interest and of affection, which can call on heart as well as the head; and no system of human administration can have a real life and effect if it does not appeal to both.

To study the history of the boundaries of such a shire as Dorset is to find a means to explore a very ancient organisation, indeed organism, and a powerfully interesting one.

Lyme and the Devon–Dorset county boundary; where the questions began

Katherine Barker

This contribution, based on the presentation given on 17 November 2007, is itself a précis of part of a forthcoming paper where full references will be found (Barker forthcoming b). The content of the following note, it is hoped, will provide a context sufficient to throw fresh light on the the origins of the West Saxon Devon–Dorset shiring at Lyme. It poses questions about the nature of the rest of Dorset's county boundary; it was work on Lyme that prompted the formation of a research group. This note concludes with a number of observations prompted by the preliminary field work of the last 18 months.

It is interesting to reflect on the fact that in a county well-known and well-regarded for its archaeology, every time the Group has met and walked a length of the county boundary we have no clear idea of what it is we are going to find. And each time, more questions are posed than we can yet even begin to answer. It is already apparent that we are looking at a composite boundary, that is, the actual linear feature itself. What we are also beginning to see in some parts is a borderland of considerable antiquity; that rather distinctive settlement geography associated with the margins – those outlying secondary lands of the geographer of primary interest to the landscape historian.

Looking at the basic outline of the county, attention is immediately drawn to that northern salient comprising the royal manor of Gillingham; those *Gillingas*, 'Gilla's people'. There are few *ingas* place-names this far west. Graham Hoddinott has contributed a note here about some of his preliminary findings in the area. A second, rather smaller northern salient a little further west is occupied by the ecclesiastical manor of Sherborne to which further reference is made below. Along its north-eastern length the Dorset–Wiltshire border runs with the course of the 10th-century charter boundaries of both Sixpenny Handley and Chalke and in the west, the Dorset–Somerset border runs with the 9th-century charter boundary of Halstock. And adjacent to Halstock we find North and South Perrott either side of the shire boundary, a single estate straddling the Axe–Parrett watershed. The county boundary with Hampshire (since 1895) follows a clearly manmade course where it runs with Bokerley Dyke, that substantial late Romano-British bank and ditch which traverses nearly four miles of high chalk downland. What happens in the south-eastern, coastal, corner is discussed by Iain Hewitt (see below). I take my bearings today from the south-western coastal corner, at Lyme.

Sherborne and Lyme

It was in looking at Sherborne, at the early ecclesiastical estates held by the Bishopric – and by the 10th-century Benedictine house – which first drew attention to the west Dorset county boundary. Sherborne's principal

medieval estates occupy that wide arc of country which lies along the borders of west Dorset; in a number of instances coincident with the border itself. The 'frontier' location of the bishop of Sherborne's three episcopal hundreds, Sherborne, Yetminster and Beaminster has already been noted (Barker 2005a, 2, fig. 16, 158–9). It was the disposition of this string of estates that first led the eye down to the coast at Lyme (Barker 1984), that is, to today's Lyme *Regis*, 'of the king' which lies on the Dorset–Devon border (see Plate 1). Lyme is immediately of interest for it is the subject of Sherborne's earliest surviving charter; its textual authenticity supported by the fact the estate it describes can be identified on the ground. From the outset the bounds of this early Lyme estate drew attention to the course of this particular length of Dorset's county boundary and posed questions as to its origin.

The nub of the matter concerns the granting by King Cynewulf to Sherborne in 774 of one *mansio* of land on the west bank of the stream called the *Lim* near where it runs into the sea. The grant was for the purpose of *sal coqueretur*, the winning – literally the boiling – of salt [water]; sea salt (Barker 2005a, 1; 2005b). Salt was an essential commodity and thus an important source of revenue. Not surprisingly, we find reference to this small estate in the Sherborne Benedictine charter of 998 – and again in Domesday in 1086. In 774 it was described as one *mansio* of land, in 998 as one *mansa* [of land] and in 1086 it is an [ungelded/untaxed] *caruca* and listed as the site of a bishop's *domus*, literally 'house'. The use of the word *mansio* seems likely to imply that this estate was already invested with a residential function by the mid-8th century. Lyme formed Sherborne's only access to the coast; not only a producer of salt but a harbour; a *portus*.

It is the boundary of the neighbouring Glastonbury Abbey-held estate of Uplyme which provides the key to the location of the Sherborne *mansio* (Fox 1970, 35–47; Fig. 1). Surveyed in 938, it was re-surveyed in 1516, and but for a later adjustment around Shapwick on the western side of the estate the bounds define those of today's parish. The bounds of the Glastonbury estate skirt

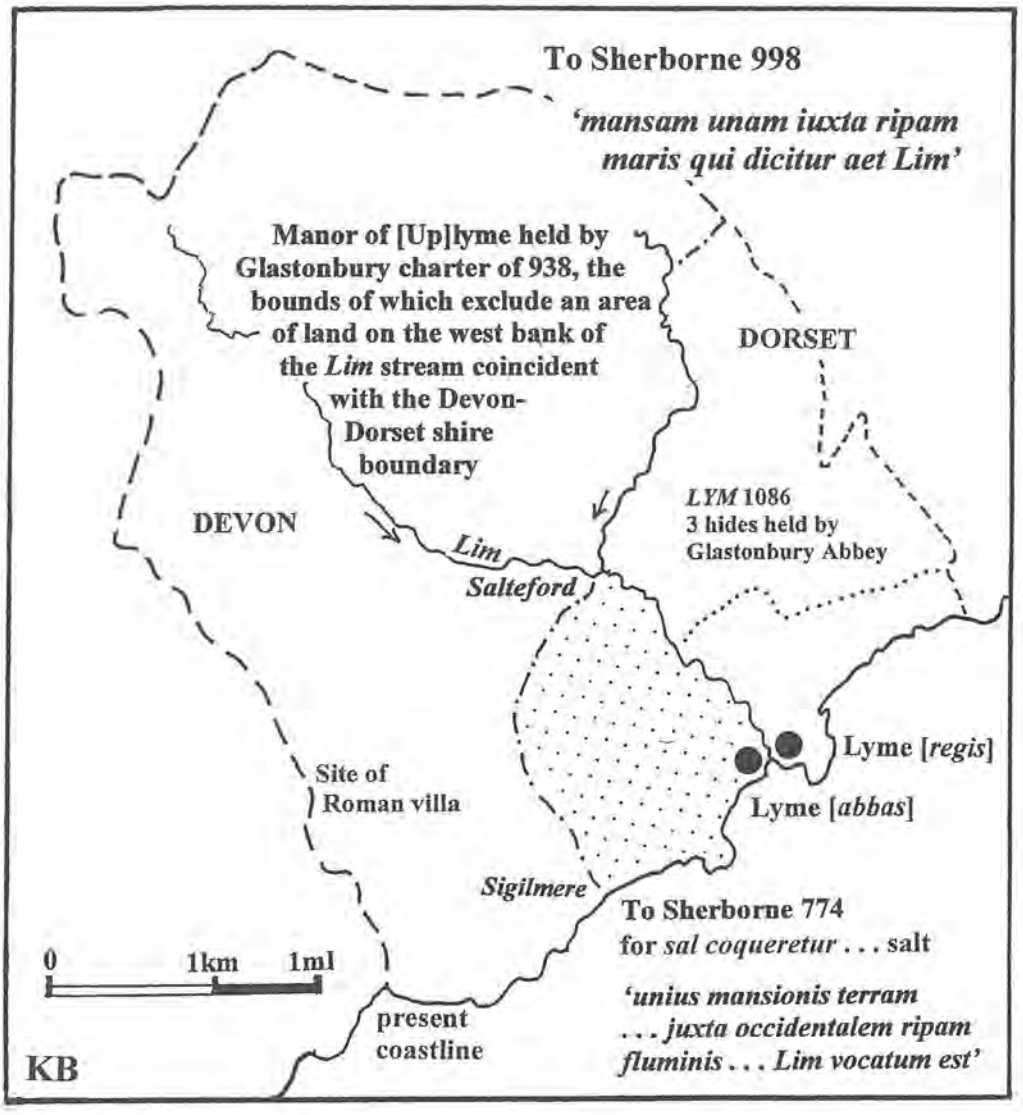


Figure 1: Map of the four Lyme-named estates of 1086 astride the Devon–Dorset county boundary

Figure 2: The hercology of the Lyme estate; the Sherborne mansio *of land of 774 is shown shaded; reference to the same estate is found in the Benedictine charter of 998. The map is based on that which first appeared in Barker 2005a, fig. 24*

round a wedge-shaped area of the coast lying on the west bank of the stream where it flows into the sea and neatly complements the description of that *mansio* of land granted to Sherborne a century and half earlier. The Uplyme perambulation thus provides a description of that length of the boundary shared with the *mansio* which also runs with the Devon–Dorset shire boundary. On the ground today the boundary takes the form of a prominent bank (see Plate 2).

The 774 *mansio* makes good sense of the Domesday listing (Fig. 2). This echoes James Campbell's words for here too, the Devon–Dorset county boundary was clearly already well established by 1086. Glastonbury held two *Lim*-named estates, one in Devon [Uplyme] and one in Dorset [later known as Colway]. The other two *Lim*-named estates both lay in Dorset, one held by William de Belet, the king's sergeant, which may be identified with the future chartered borough on the east bank of the Lim and the west bank is occupied by the *caruca* of land held by Sarum (by Sherborne until 1075); the *mansio* of 774. In 1086 king and bishop thus had direct control of an important – and valuable – length of the Dorset coastline; the hinterland on either side of the shire boundary was held by Glastonbury.

A four-fold estate structure astride two counties presents something distinctive. There is something literally *artificial* about the cutting in two, the *shiring* of a discrete geographical estate unit based on the catchment area of a single stream. The neighbouring Char valley is not divided like this, nor is that of the Brit/Bride. In existence in 1086, arguably already in existence at the time of the first reference to Dorset in 840, the course of the shire boundary here invites some kind of explanation.

Quidam discrimen duobus; Lyme divided in two between Devon and Dorset

Here the matter remained until relatively recently when a re-reading, a re-translating – and a re-thinking – about one of Aldhelm of Malmesbury's *carmina*, epic verses, suggests that we may be in possession of something which has more significance than the purely poetic. This is a work which, it may be argued, reflects a strategic division of the early West Saxon kingdom concomitant with the setting up of the new bishopric at Sherborne of which he was appointed first bishop in the opening years of the 8th century.

Aldhelm of Malmesbury, scholar and writer extraordinary, became bishop of Sherborne in 705–6. Michael Lapidge (2007, 170–22) has recently convincingly demonstrated that the father of this prince of royal blood was King Centwine. Aldhelm describes Centwine as a great benefactor of *basilicae*, 'churches'. On retiring to a holy *cella* Centwine made available the means to set up many churches *plurima basilicas impendens rura novellis* on newly colonised rural estates (Ehwald 1919, 14–15; Lapidge and Rosier 1985, 177–79). It was Pope Vitalian who appointed a Greek, Theodore of Tarsus, archbishop of Canterbury in 668 and who charged him with the setting up of a formal and structured ecclesiastical administration in *Britannia*. Theodore's policy has been described as one combining 'the virtues of both Roman and Irish organisation ... arranging 'bishoprics territorially with a scrupulous regard for political and territorial divisions' (Mayr-Harting 1972, 130–2). Centwine's reign, 676–685, will have fallen within Theodore's term of office; Theodore died in 690. The division of the great See of Winchester did not, however, take place until after the deaths of both; the reasons for the delay are not known, but were sufficient to have King Ine (688–726) threatened with excommunication (Cubitt 1995, 259–60). In the event, the new bishopric was set up at Sherborne and Aldhelm was charged with responsibility for that land which, in the words of the *Anglo-Saxon Chronicle*, lay 'to the west of the [Sel]wood' (*ASC*; *s a* 709; 41), that is, the present Wiltshire–Somerset border. And by implication that land will have included *Dumnonia*, already Christian. Aldhelm wrote a lengthy *epistola* to King Gereint of *Dumnonia* and his *sacerdotes*, bishops, demanding they come into line with the tenets of the [Roman] church as promoted by the West Saxon ruling house. A year after Aldhelm's death, Ine mounted an attack on Gereint who disappears from history.

The product of the second half of the 7th century, Aldhelm's career spans the years 650–710. Son of an [Old] English-speaking West Saxon ruler, he spent many years in the company of Irish scholars. He writes in a third language, in an obscure, contrived and long-winded literary Anglo-Latin prose style. He was also highly skilled in the poetic arts and it is one of these works which – it is argued

here – has relevance for an understanding of the settlement geography of Lyme. Aldhelm's words lend a colourful dimension to the hitherto black and white world of the charter boundary and the scale map.

Of some importance here is to note that Aldhelm alerts us to the fact that there are four ways of understanding a literary text. Four principles need to be applied. The first is *historia*, chronological fact, those things directly relating to time and to space, that discipline which formed the basis of current scholarship. Less familiar are those complementary 7th-century textual disciplines of *allegoria*, *tropologia* and *anagoge*, allegory, metaphor and the mystical. That is, the use of language so constructed as to convey more than one meaning by the skilful use of allegory and *tropology* or metaphor, a setting of a scene or the use of a word or words to denote or represent another – and complementary – sense or senses; words also arranged to convey a spiritual meaning. It becomes increasingly clear that this four-fold philosophy was employed by Aldhelm in his own writing. His text is much more than just Fact or Fiction. He is a skilful player-with-words – and he does it across languages – in so far as we may begin to discern such.

The Aldhelm *carmen* alluded to above is major poetic work which tells the story of a dramatic storm which took place somewhere along the coast of the south-west. The manuscript has lost any original title and the work is simply known as the *Carmen Rhythmicum*, 'rhythmical epic' and which comprises a consummately skilful piece of 300-line octo-syllabic Anglo-Latin verse writing (Ehwald 1919, 524–28; Lapidge and Rosier 1985, 177–79). Aldhelm refers to himself as a *poeta* and writer of *carmina*. In the old classical Roman world, the *carmen* was a verse form composed for public performance; an analagous bardic tradition was to be found in the northern Celtic world where poets – bards – employed by those who held power, served as the licensed 'media' of a pre-literate society.

Aldhelm's *Carmen* describes in graphic detail the damage done by a hurricane-force gale, the tearing up of fully grown oak trees and the crashing of huge waves on the gravelly beaches. The *dénouement* is the ripping off of the roof of the building where Aldhelm and his company were worshipping in the early hours of the morning of the 29 June – the Feast Day of Sts Peter and Paul. It is those lines which describe the collapsing of the roof and the safe escape made by those in the church just in time, which, it is suggested, may be understood in more than one way.

It is lines 145–47 of the *Carmen* that are concerned here. As the roof starts to heave and creak the terrified company make a mad dash for the door of the collapsing building – and on two consecutive lines we find the words *limina* and then *Portum*.

> *Tum tandem cursu caterva*
> *Confracta linquens* ***limina***
> ***Portum*** *petit basilicae ...*

At the critical moment, just in time, the *caterva*, company, make a mad dash for the door, as the *limina portum*, the door lintels, the doorway itself, starts to break up – had broken up – *confracta*. It was the *limina portum* of a building Aldhelm describes as a *basilica*.

It is here we find the emotive juxtaposition of two of Aldhelm's Latin words, *limina* and *portum*. Across two lines yes – but it is suggested that this is an oblique reference to the name of the place (Barker forthcoming b). It is posited that this **Portus Limina* is to be identified with Lyme.

Lympne in Kent was Roman *Portus Lemanis* (Rivet and Smith 1979, 385–6); *portus* as in today's *Port*chester and *Port*smouth. The standard etymologies give only one origin for Lyme/Lim as a Brittonic water name (Mills 1998, 102), but *lim* is also a word element well represented in Latin. In Later Latin a *limicola*, was a marsh-dweller and *limniasis*, the salt efflorescence on marshland vegetation (Souter 1949, 232). Aldhelm may be providing us with a Latinised place-name; alternatively this could represent a name actually surviving from Roman Britain. The charter of 774 describes the river name as *quod vulgo Lim vocatum est*, which in the vulgar tongue – that is the name in current local use – is called the 'Lim'. Further, we note that for Lympne an early rendering of the river name there is as the *Limen* (Brooks 1988, 95–8) that is *limen*, Latin 'threshold' 'boundary' where it serves as the border between the *Cantii* and the *Regni*. And here at Lyme our putative **Portus Limina* is sited on what becomes the shire boundary. Why, after all, should a place-name have a single meaning, a single significance? *Historia* may insist on just one, *tropologia* will allow for more. And Aldhelm gives us not a single *limen* here but more than one; *limina*, 'boundaries' 'thresholds'. Poetic value of the word is an important consideration in a *carmen*; but *Lim* does indeed present us with more than one on the ground. Aldhelm may also make an allusion to *Lim* in his *Salis* 'On Salt' riddle where he describes the process of brine boiling. The word he uses for seawater is ***limpha*** – a word more usually denoting fresh water (Barker 2005b, 45–6).

Reading on to lines 151–54, we learn more about how Aldhelm and his companions make their escape from the collapsing building.

> *Quidam discrimen duobus*
> *Devitantes cum saltibus*
> *Per devexa ac lubrica*
> *Clivosi ruris latera*

'Which/who dividing in two/two by two escaping with leaps out on to the steep and slippery hillsides ... ' The Liassic clays at Lyme are certainly slippery and the hillsides are certainly steep. But this reference to 'dividing two by two' is perhaps a slightly contrived way of describing terrified people escaping from a collapsing building and we pause to ask as to whether it does literally have a 'double' meaning. *Discrimen* is a 'dividing' as

in 'discrimination', that critical split in two, *duobus*. Then there is this word *saltus* ... a 'leap' yes, but also the Latin word for an [imperial] estate. Then follows *clivosi ruris latera*, that is, *rus, ruris*, 'country' as distinct from town; it is the word used by Aldhelm to describe those estates where King Centwine had set up new *basilicas* 'churches'. And this one is *clivosi*, steeply sloping. It is at this point we may understand these words as a poetic reference to the shiring – to the formal division into two – of this steep-sided estate.

It is here we return the opening lines of the *Carmen*. And find they may be read in complement to the above. Aldhelm sets the scene in lines 8–10 by making reference to two real places; to *Domnonia* and *Cornubia*, Devon and Cornwall.

Quando profectus fueram
Usque diram Domnoniam
Per carentem Cornubiam

'When I had set out, *usque*, to dire/doom-laden Devon by way of shorn Cornwall ...' he writes as an introduction to the coming storm. Aldhelm has minimal words with which to express things in this tight piece of metrical verse-composition and it is the word *usque* which attracts attention. Latin *usque* is 'as far as' in the sense of to the edge or limits of something; current French *jusqu'à* conveys much the same thing. *Jusqu'à Domnonia* ... he is travelling to the very edge of *Domnonia/Dumnonia*. As Prof. Lapidge (2007, 173) has pointed out the precise location of the church in the *Carmen Rhythmicum* cannot be located because we do not know where the limits of *Domnonia* lay in the later 7th century (that is, Brittonic/Celtic Devon), because this is where Aldhelm had been travelling as the storm started to blow up. But if – as it were – we turn the tables we can argue that Aldhelm is indeed travelling to the borders of *Dumnonia*; he is travelling to that border carefully defined by the new ruling Order – his new ruling Order. The words of the *Carmen* are promoting the spiritual – and temporal – significance of the work of the Roman church and its royal West Saxon patrons. Indeed, it can be argued that Aldhelm's preferred spelling of *Domnonia* – more usually *Dumnonia* – is itself not solely of poetic significance (see Barker forthcoming b).

An important component of a literary work was the dedication to a wealthy or high-born patron. *Carmina* were composed for performance – literally for 'publication'. Aldhelm veils the identity of his dedicatee; he is Latin *cases ... obses* 'helmet hostage'; in Old English *helm gils*. Reduced to a few lines here is the thesis discussed more fully elsewhere (Barker forthcoming b) namely that the person who should be considered is the first West Saxon abbot of Glastonbury who was one *Hemgils* or *Haemgils* (Foot 1991, 168–70). Aldhelm, *eald helm* 'old helmet', the superior player, has dedicated this work to his *helm gils*, 'helmet-hostage'. Further, we note that in Latin, 'to hem in' is *obsideo, obsidere, obsessi, obsessum*, 'to surround' or 'encompass'. Thus there is a *casses* 'helmet'

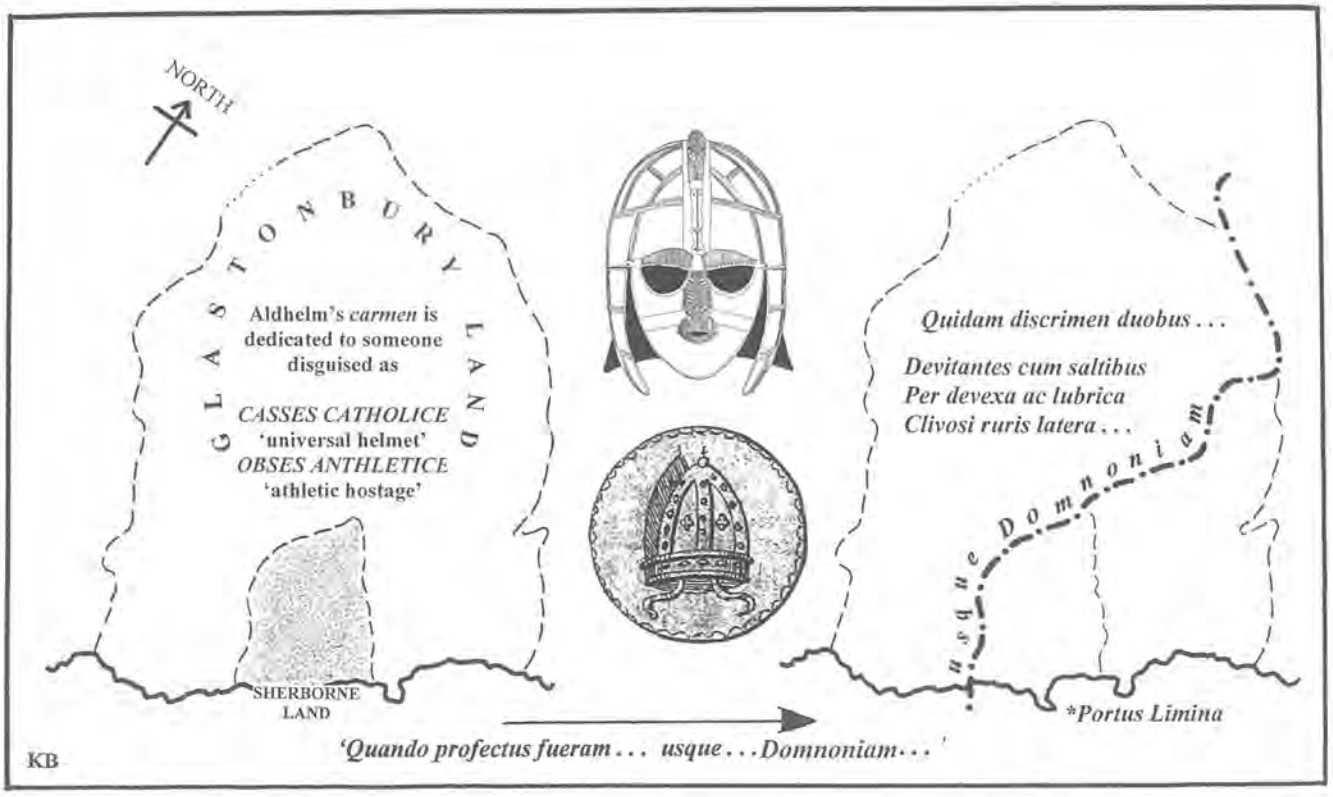


Figure 3: The Carmen Rhythmicum, *the suggested political geography of an early Anglo-Latin poem; a pictorial representation of the Glastonbury and Sherborne estates at Lyme on the [Devon–Dorset] border* usque Domnoniam *as suggested by Aldhelm's dedication of this epic verse to one casses ...* obses, *'helmet–hostage' and his ostensibly poetic reference to* quidam discrimen duobus, *'which divided into two ....'*

which also *obses* 'hems in' – intimations here of more word play. Aldhelm's dedication may be read as a reference to the relations between Glastonbury and Sherborne estates. In short, the words evoke a geography.

This can be expressed in picture form (see Fig. 3). Adjusting the position of north, we see a helmet-shaped [Glastonbury] estate, into which a [Sherborne] mitre-shaped estate has intruded from the base. Alternatively, we may choose to see a Glastonbury mitre worn by Sherborne. It is possible that Glastonbury had been the seat of a British bishop. The implication is that the substantial wooden church in which Aldhelm was worshipping formed part of an extended Glastonbury *paruchia*. And the helmet? The 7th century is – as Martin Carver (1992) has observed – the century of Sutton Hoo. It is also the century of Aldhelm.

The implications are that this length of the Dorset coast was already held by Glastonbury in the later 7th century and that the new West Saxon bishopric cut out a length of this strategic – profitable – coastline thus dividing the revenues. Interestingly, *discrimen* is a word Aldhelm also uses in his *Salis* riddle ostensibly alluding to that critical point where boiling seawater turns into salt crystals. Holcombe in Uplyme is the site of a large Roman villa. The removal of the internal divisions of the four-fold *Lim* estate poses the question as to whether what we see represented here is a former single salt-producing Roman estate; salt was a state monopoly under the Roman Empire. Salt remained an essential commodity. When the record begins again its production is in the hands of the successor authorities, crown and early church which divided the revenues not only between two manors but between two shires.

Aldhelm's *Carmen Rhythmicum* is not only a brilliant piece of early Anglo-Latin verse composition, it also has a geography expressed in patristic, spiritual and poetic language, its inspiration grounded in a real place and a real event that took place in the closing years of the 7th century. It is surely cast in the style of what is evidenced in contemporary poetic – bardic tradition – both Irish and Germanic – that formal style adopted for the literal publication of received truths, in this case the [Roman] Christian and liturgical, and for want of a better word, the 'administrative' as well. What we may see reflected here in Aldhelm's words is the formal shiring of this part of the kingdom. That is, a territorial division effected in consequence of a directive to regularise – literally to define – the collection of tax and tithe. Not omitting those dues and customs which have been payable at the *portus*.

The two decades concerned, those at the end of the 7th century, coincide with those which, as James Campbell has already noted, witnessed the promulgation of the Law Code of King Ine (*c.* 688–*c.* 693), Aldhelm's royal sponsor. The Code makes references to *scirmen*, 'shire men' (Attenborough 1922; *Laws of Ine*, 6, 36, 39).

As to whether the term alludes to responsibilities relating to the formal shiring of Wessex, as seems likely, conclusive proof is lacking. The result of the *discrimen* was to place the Sherborne *mansio* at Lyme in Dorset, that is, in the same shire as its mother house. Which is something noted here by James Campbell for the ecclesiastical estates of Worcester and Gloucester both of which were retained within their respective shires.

Hemgils was abbot of Glastonbury by 680 and William of Malmesbury describes him as holding office for twenty five years (Foot 1991; Barker forthcoming b). King Ine became king in 688. Aldhelm was abbot of Malmesbury in the years before he became bishop of Sherborne in 705; he also spent some time studying in Canterbury. Aldhelm's words (lines 3–7) tell us that he had taken some time to deliver his work – his *carmen* – which indicates that he is describing something which had happened a few years earlier. The actual date of the storm remains elusive (at least as yet), but most likely is the final decade of the 7th century, the 690s. Aldhelm wrote a lengthy treatise on the spiritual significance of Seven; these events took place in those years leading up to the year 700. Theodore was the seventh archbishop of Canterbury.

Aldhelm is writing to a well-established *forma* (a word he uses for his *Carmen de Virginitate*); he is skilfully using the media of a pre-literate world, a world of oral epic poetic tradition, to promote the new Order. The *Carmen Rhythmicum* has not hitherto been seen in this way. And the new Order in Lyme – with its boundary – was to prevail. Aldhelm and his West Saxon company survived the storm. The church in which they were worshipping did not.

The Glastonbury Uplyme charter and the Sherborne *mansio* boundary

The text of the 938 and 1516 boundary surveys of Uplyme thus acquire an enhanced significance and more particularly here for that length of the boundary which marks both the western border of the Sherborne *mansio* and the Dorset–Devon shire boundary (Fox 1970, 102, 35–47; Fig. 4, see also John Newbould's report). Those lengths of the boundary which are readily accessible today take the form of a prominent bank supporting a number of veteran trees. At several points the bank has been cut into for the insertion of gateways.

In 938 the bounds run direct from the *Salteforde* (just below the site of Uplyme mill) where, we may understand, pack animals crossed the watercourse making their way inland, thence to *sweluende*, to a 'whirlpool', a 'deep pool', then from the [River] *Lym* to the *hasil*, 'hazel', and from there straight up to the *Somersete*, that is, the *somor saete* 'summer hill'. Notable here is the paucity of detail; the boundary was clearly visible. In its essentials, it takes us from the Saltford on the Lim straight up to the hilltop now occupied by a games field, crossed by what is now Shire Lane. The only detail concerns the river course; it may be that there was already

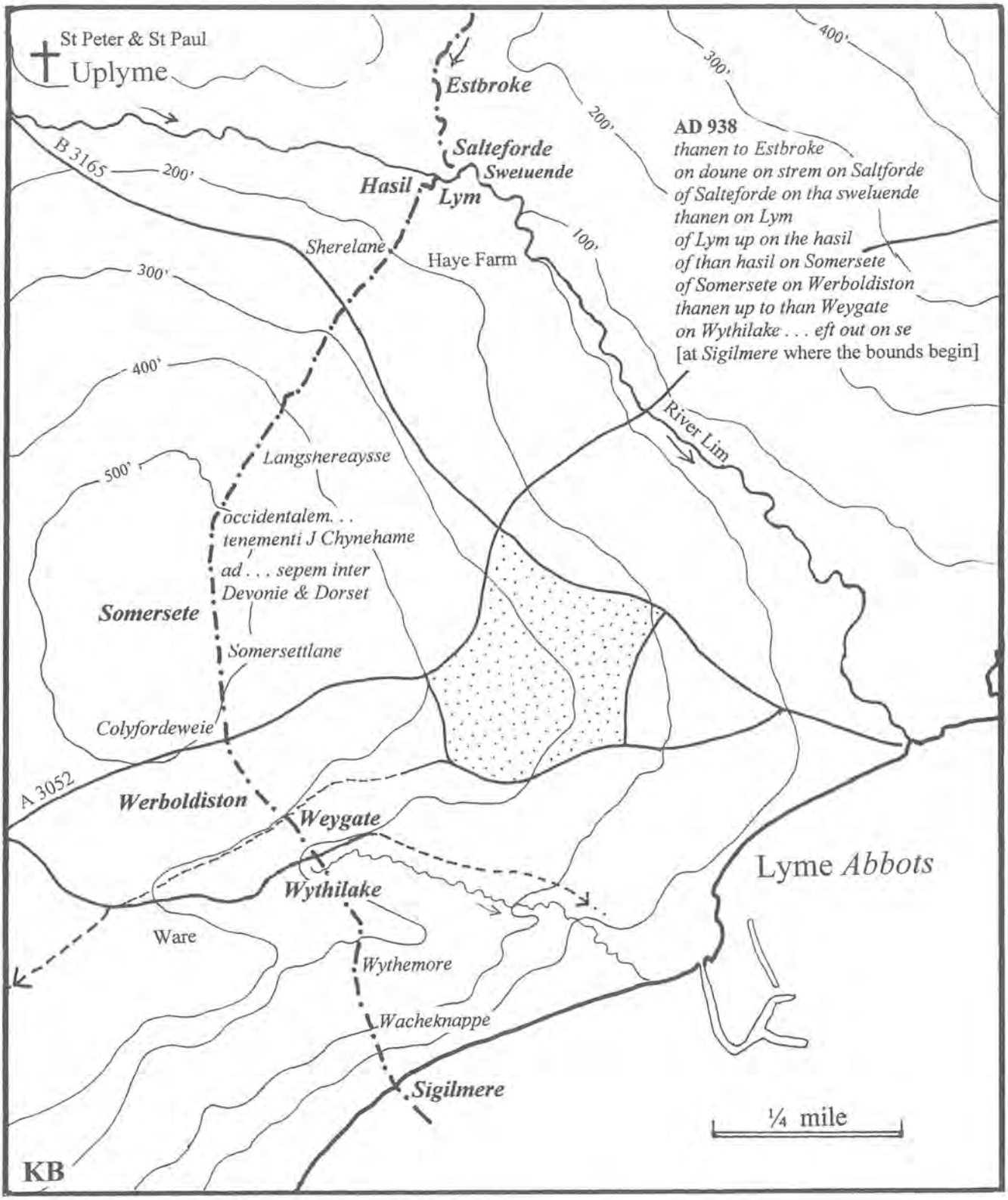


Figure 4: The charter boundary of the Glastonbury manor of Uplyme, that length coincident with both the Sherborne mansio *and the Devon–Dorset county boundary. Captions in bold italic relate to boundary references of 938; other references in italic are those of the later survey of 1516. The Uplyme boundary recital reads clockwise, beginning at* Sigilmere, *running west along the coast, then heading north along the west side of the Uplyme estate before returning southwards down the* Estbroke *to the* Salteforde. *From there is crosses the Lim and follows a course south-west and then south back to the coast, thus defining that area of land on the west bank of the Lim granted to Sherborne in 774 for the production of sea salt. The coastline is that of today; the original site of* Sigilmere *and probably of the* Wacheknappe, *'look out hill' are lost. By 1405 the former Sherborne* mansio *– together with Halstock granted to Sherborne by charter of 842 and also on the Dorset county boundary – formed a Salisbury prebend (Wanklyn 1944, 64–7). The stippled area is that of the prebendal endowment*

a mill here – or two. There are today two mill sites in the immediate vicinity, one to the north on the Devonshire side of the boundary and the other on the Dorset side. Uplyme was a Glastonbury manor; by the 10th century its mother house well-acquainted with what might today be dubbed 'water management'. The 1516 survey gives an additional reference here to a 'white withy' (see John Newbould's report).

The reference to the 'hazel' probably indicates a point where the boundary forms a corner; the reference to hazel has a relevance for the name of Haye Farm. *Hay* or *hays*, from Latin *haga*, enters Old English as *(ge)haeg* whence derives the word 'hedge'. Denoting a [coppiced] hedged enclosure it is a name often associated with the retention (or trapping) of animals. The *mansio* boundary hedge here comprises a number of very substantial hazel coppice stools; its relation to another row of hazel coppice stools set at right-angles to the boundary may also have an implication as regards the control of human traffic (see Barker forthcoming c). We may take it that in 938 the boundary was plain to see as it climbed the steep slope up to the *somersete*.

The additional detail supplied by the complementary 1516 survey makes it fairly clear that its course here was followed by a path; from the hazel the next point listed is the *Sherelane*, which led to the *Somersete* firstly by way of the *Langshereayssh*, 'land shire ash' (Plate 2) secondly along the western limit of a tenement, and thirdly to a 'certain hedge between ... Devon and Dorset. Once having arrived at the hilltop, the *Somersete*, a *Somersettlane* led on to the *Colyfordweie*, the present coast road, the A3052. Today's Shire Lane was, it seems, formerly *Somersettlane* – and the original Shire Lane was that path which climbed the steep slope from the old Black Dog Inn (see Plate 1) the course of which was obliterated by the digging of a railway cutting in 1903 and is now heavily overgrown.

At the coastal end the bounds of the *mansio* begin at *Sigilmere* which will have long been lost to the sea; the headland is today known as Devonshire Head. Fox (1970, 41) notes that '*mere* can mean pool', but also possible here is *(ge)maere* 'boundary' or 'limit'. *Sigil* 'sun', can also be a jewel or a bright object; the name may simply denote the south western 'sunset' edge of the Sherborne estate. The name may alternatively evoke a long-lost seamark of some kind along this dangerous length of coastline. Of relevance here is the fact that the 1516 survey refers to a *Wacheknappe*, 'look-out point' immediately inland from *Segemere*; neither can be identified today.

Running inland from the *Sigilmere* to the *Somersete*, the 938 perambulation gives *Withilake*, then *Weygate*, then *Werboldiston*. John Newbould's report notes the vegetation associated here with the small watercourse, the *lacu* that runs down to the coast at Lyme at what is now the Cobb. Fox (1991, 45) identifies *Werboldiston* with today's Ware House.

It is the *weygate* of 938 that may deserve a second look, that is OE *waegn geat*, 'cart/wagon gate'. It is not mentioned in 1516. The *weygate* will have been located on the *mansio* boundary between Sherborne and Glastonbury Abbey estates where it is crossed by a route that ran in an easterly direction up from Lyme harbour; a route of which little remains. Closer inspection of this area suggests this now lost route continued west along the coast running through the site of what is now Ware House and Ware Farm – *Werboldiston* – continuing west to the Axe estuary. The present east–west coast route lies further inland, represented by the *Colyfordweie* of the 1516 charter which lead – as its name suggests – to the 13th-century borough at Colyford. In 1970 when Fox published his paper this route was the A35. The present A35 is today the wide main road running east–west along the northern edge of Uplyme, well away from the coast. The absence of the *weygate* in 1516 is related to coastal erosion and to landslipping; the successor route, the *Colyfordweie* – we may note – was not gated.

The record of a *geat* here on the Dorset–Devon shire boundary – on the border of an early Glastonbury estate – may find a parallel in *geat* names which present on the Somerset–Wiltshire border for the Glastonbury Abbey estate of Lamyatt and for yet another Glastonbury Abbey estate on the Dorset–Hampshire (formerly Wiltshire) border at Woodyates. The possible significance of these names in relation to 'border controls', to the levying of dues on the movement of goods along the lines of that evidenced for 7th-century Merovingian Gaul is discussed elsewhere (see Barker forthcoming a).

The coincidence of *geat* names with shire boundaries may be evidenced for other shires. A wholly chance discovery of the 1:25000 OS Sheet TL 01 for 'Markyate' OE 'border gate', drew attention the Hertfordshire–Bedfordshire county boundary. Markyate is located in the Chilterns at the head of the valley of the River Ver on the Hertfordshire side of the border. It lies on Watling Street, 8½ miles from St Albans [*Verulamium*] and is the site of a one-time Benedictine Priory. There is still a Markyate Cell Farm. In a location of this character, it may be Markyate represents the site of a one-time Roman *mansio*, an imperial staging post. Archbishop Theodore in his [re]imposition of Roman Law may also have related to the regularisation of earlier – lapsed – points of revenue collection.

The site of the Sherborne bishopric

This paper concludes with a note on the site selected for the site of Aldhelm's bishopric at Sherborne. The siting of Sherborne on the county boundary is very noticeable but seems, so far, to have attracted little attention. Its location goes far to suggest that Dorset and Somerset represent a complementary pair of pre-Saxon territories stretching across the higher part of the south-western peninsula and which had retained an identity into the later 7th century (see Fig. 5). Such is likely to be reflected in this distinctive pairing of *saete* names (Lewis 2007,

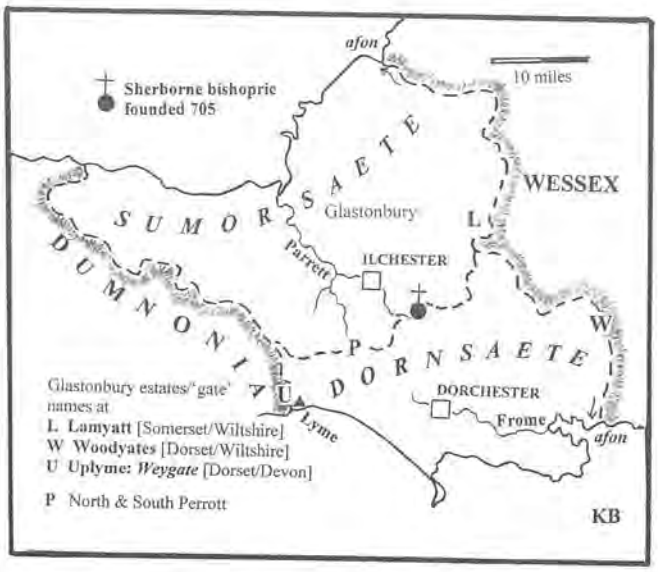


Figure 5: Sketch map of Somerset and Dorset. The location of Sherborne is shown in relation to this pair of territories stretching across the higher part of the south-west peninsula literally from afon *to* afon, *'river' to 'river' – Bristol Avon to Hampshire Avon. Also indicated is the location of Lyme and the 938* weygate *between Sherborne and Glastonbury Abbey manors, the 'gate' named Glastonbury Abbey manors of Lamyatt and Woodyates, and the Perrott estate, north and south*

14–143; Barker forthcoming a). Both Dorchester and Ilchester had been *civitas* capitals of the *Durotriges*; the distribution of *Durotrigian* coinage is spread across both counties (Putnam 2007, 17). Location on a border is well evidenced for the meetings of early synods – Bede relates how St Augustine travelled up the Thames to meet a delegation of British bishops on the borders of the *Hwicce* and the West Saxons at the place that became known as St Augustine's Oak (HE II, ii 134–35). The famous Synod of Whitby of 664 took place on the borders of the kingdoms of Deira and Bernicia (Benedicta Ward 2007, 7). Boundaries are well-known locations of parleying places – of seasonal markets and fairs – there are a number of early Irish churches sited on the borders of established so-called 'tribal' territories.

Geographically speaking, Sherborne lies in Somerset. It occupies a site on the River Yeo, a tributary of the River Parrett. Something which has again been discussed more fully elsewhere (Barker forthcoming a) is the suggestion that the proto-shire boundary at Sherborne was strategically adjusted so as to remove the site of the new cathedral from the northern of the two territories and to place in that to the south where it had no pre-existing identity thus placing it on 'new ground'. The newly established West Saxon episcopal estate was freed, as it were, of any earlier tax status. In early ecclesiastical terms this is expressed in terms of 'immunities' granted to churches by kings; grants of 'immunity' are found in Sherborne's early record (O'Donovan 1988, xliv).

By Domesday the Sherborne manor is flanked by royal manors. In 1086 it occupies a prominent northern salient of Dorset with a distinctive manorial status. Along the Yeo valley to both east and west – in Somerset – were, respectively, the royal manors of Milborne [Port] and Yeovil [Kingston].

King Ine under whom the Sherborne bishopric was set up, is recorded as granting to the Sherborne church an estate of unrecorded size *iuxta Pedridun*. This estate observes O'Donovan (1988, xliv) 'could be either North Perrott in Somerset or South Perrott in Dorset' – or both. This pair of border estates invite further work; they are divided by an east–west boundary clearly following a man-made course – and lie across the Parrett–Axe [Bristol/English Channel] watershed. Perrott is the scene of the martyrdom of St Indract by one of King Ine's agents. Indract, relates John of Tynemouth (Doble 1997, 28–9; Barker forthcoming a), was travelling with his companions to Glastonbury from *Tamerunta* – on the Tamar – in *Dumnonia*. The implication is that they were travelling north from the Dorset coast. Committed to writing many centuries after the event it describes, the precise geographical setting described is such to suggest it was one to add to both the veracity and power of the story – with a contemporary (14th-century) audience in mind. It would have been easy enough to have Indract robbed and murdered almost anywhere on his journey to Glastonbury – but it was on the Dorset–Somerset shire boundary that John of Tynemouth set the scene; at Perrott.

Concluding observations

It is clear that not all lengths of Dorset's county boundary will carry the documentary potential of Lyme where archaeological investigation of the *mansio*/shire boundary is clearly invited. Such investigation is likely to be the first of its kind. The indications are that something not dissimilar may be evidenced for the early Sherborne estate *iuxta Pedridun*, Perrott, and possibly for Sherborne itself. How many other lengths of the shire boundary (that is, those pre-dating the well-documented changes of the 19th century or those demonstrably attendant, for example, on Parliamentary Enclosure) follow a course already in existence in the later 7th century poses the question about the nature and role of earlier boundaries and particularly those of the *Durotrigian*/Roman period and the extent to which some lengths of the shire boundary are literally a re-definition of an earlier order by incoming West Saxon rulers as appears to be the case with Bokerley Dyke. Immediately to the west that salient of Dorset intruding into Wiltshire round Cobley is more recent. Then there will be the relation of what becomes the shire boundary to earlier hundred and estate boundaries; Christopher Taylor in Dorset (1970; 2004) and Desmond Bonney in Wiltshire (1972) were able to demonstrate the prehistoric origins of valley-based parish boundary systems.

From the preliminary work already undertaken there is clearly a need for systematic survey of veteran tree stools on – or directly associated with – the shire

Plate 1: The Devon–Dorset shire boundary where it crosses the B3165 on the Uplyme Road at the former Black Dog Inn. The boundary here follows that of the mansio *of the Sherborne charter of 774; note the bank on the left of the picture on the further side of which a footpath – part of the* Sherelane *of the 1516 survey - leads down to the former* Salteforde *on the River Lim. Note also the change of wall character and colour on the other side of the road*

Plate 2: (above) The Langshereayssh, *the 'land shire ash' recorded in 1516 on the Devon–Dorset boundary looking east. The huge size of this ash stool is eloquently illustrated by the field gate lying at its foot against the boundary bank of the Sherborne* mansio *of 774. The age of this ash tree remains to be determined*

Plate 3: (left) Looking south in Kingsettle Wood north of Shaftesbury at ST 868 255. The Dorset–Wiltshire boundary takes the form of a substantial earth bank which can be seen on the left of the picture running along the ridge through the wood. The bank is much overgrown

Plate 4: (left) A huge laid and coppiced ash tree at SY 0026 1955, the form of which derives from centuries' worth of traditional hedge-laying techniques. It extends over 4m along a low bank that here defines the Dorset–Wiltshire boundary. As with the Langshereayssh *of the Uplyme charter (see Plate 2) its age remains to be established*

Plate 5: (left) A massive whitebeam stool at SU 005 196 growing about 100m upslope from the Bowerchalke road (see Plate 6) on the shire boundary dividing the parishes of Pentridge and Bowerchalke and photographed from Pentridge. The boundary here is about 14m wide and so overgrown as to be more or less inaccessible. Its dimensions are reminiscent of those presented by Bokerley Dyke further east

Plate 6: (above The shire boundary as it climbs the slope on the east side of the Bowerchalke road; its 40m width obscured by dense undergrowth. On the other side of the road in Sixpenny Handley parish the character of the ground as it presents today is quite different, the shire boundary less than 10m wide. The boundary here forms a 'funnel' entrance into Dorset slung across the north–south course of a dry valley running down slope from the ridge above Bowerchalke in Wiltshire

Plate 7: (above) At approximately SU 000 195 a hedgerow of coppiced hazels follows a low bank, here marking both the shire boundary and that of the Handley estate of the 936 charter. While these hazels are of no great antiquity, the practice of managing coppice stools along boundaries is recorded by Julius Caesar for the Nervii *in what is now Belgium. To impede the course of Roman cavalry, the* Nervii *built 'hedges like walls' cutting and laying hazel stools to form what is perhaps best described as the predecessor to barbed wire (see Barker forthcoming c).*

Plate 8: (right) A large coppiced whitebeam on the Hampshire side of the shire boundary in Vernditch Chase on Martin Down located at approximately SU 035 204

Photographs by Katherine Barker

boundary and the working towards a more accurate method of dating. To a very real degree these represent still-growing above-ground archaeology, below ground their roots lie in levels that will retain traces of buried soils and clues to the initial form taken by the boundary and how it has been maintained since. It is well known that a veteran tree needs continuing management if its life is to be further extended, what is also clear is that boundary banks and ditches also need maintenance. These otherwise rather ordinary – and often badly overgrown – features can be well over a thousand years old.

Particularly useful here are those lengths of the shire boundary coincident with 9th- and 10th-century charter boundary surveys. The age of these estates is not established; while the Sixpenny Handley charter for example dates to 956 (see John Newbould's report; Barker forthcoming c) it refers to features clearly already in existence. It is not clear, for example, as to the origins of the 'Shire Rack', OE *hraca*, 'throat', dialect *rack* 'narrow path' or 'defile' that follows the border across high chalk plateau land between Dorset and Wiltshire. When this length of the boundary was established, vantage points were clearly of some significance. Archaeological dating selected sections of the boundary – should this prove possible – will not of course, provide any information as to the size of the territory it once defined. The Shire Rack comprises a length of the county boundary, a *rack*, which may still be walked. An interesting discovery is that some lengths of the county boundary are readily accessible as designated public footpaths (for example, part of the Lyme *mansio* boundary) other lengths are not; not only do they traverse private land but can also be difficult of access.

In considering the actual physical form in which the county boundary manifests itself today, these many miles of so-far unrecorded 'linear landscape feature', poses the question as to its future. 'Boundaries are one of the most permanent and ancient features in the English landscape', observed W.G. Hoskins. Those things underground will safely remain there unless dug up, surface features will degrade over time if not if not maintained. But those things growing, those trees whose continuing existence is demonstrably the result of skilled management over many, many generations will simply cease to be if left to 'nature'. The legacy of the 21st century along this unique borderland is yet to be determined.

BIBLIOGRAPHY

ASC; Swanton, Michael (transl. and ed.), 2000 *The Anglo-Saxon Chronicles*. (London).

Attenborough, F.L. (ed. and transl.), 1922 *The Laws of the Earliest English Kings*. (Cambridge, facsimile reprint Llanerch Publishers, 2000).

Barker, Katherine, 1984 'Sherborne in Dorset; an Early Christian settlement and its Estate', in *Anglo-Saxon Studies in Archaeology and History* 3, Brit. Archaeol. Rep. British Series **102**, Oxford University Committee for Archaeology, 1–33.

Barker, Katherine, 2005a 'The Sherborne Estate at Lyme', in K. Barker, D. Hinton and A. Hunt (eds), *St Wulfsige and Sherborne, essays to celebrate the millennium of the Benedictine Abbey 889–1998*. Oxbow, Oxford, 199–204.

Barker, Katherine, 2005b 'Sherborne in AD 998; the Benedictine Abbey and its estate', in K. Barker, D. Hinton and A. Hunt (eds), *St Wulfsige and Sherborne, essays to celebrate the millennium of the Benedictine Abbey 889–1998*. Oxbow, Oxford, 149–63.

Barker, Katherine, 2005c 'Of salt and the Dorset coast at Lyme', *Proceedings of the Dorset Natural History and Archaeological Society* **127**, 45–52.

Barker, Katherine, forthcoming a, '*Usque Dumnoniam*; Sherborne, Glastonbury and the Expansion of Wessex, another look', in K. Barker and N. Brooks (eds), *St Aldhelm and Sherborne; essays to celebrate the founding of the bishopric*.

Barker, Katherine, forthcoming b, '*Usque Dumnoniam* the setting of Aldhelm's *Carmen Rhythmicum:* literature, language and the liminal', in K. Barker and N. Brooks (eds), *St Aldhelm and Sherborne; essays to celebrate the founding of the bishopric*.

Barker, Katherine, forthcoming c, 'Ancient bounds and borders; shires, counties and the limits of the AONB', in K Barker (ed.) , *The Chase, the Hart and the Park; understanding the past – informing the future*. Based on papers given at a one-day seminar in November 2006 (Cranborne and West Wiltshire Downs Area of Outstanding Natural Beauty; Occasional Papers Series 1).

Bonney, Desmond, 1972 'Early boundaries in Wessex', in P.J. Fowler (ed.), *Archaeology and the Landscape*, London, 168–86.

Brooks, Nicholas,1988 'Romney Marsh in the Early Middle Ages', in J. Eddison and C. Green (eds), *Romney Marsh: Evolution, Occupation, Reclamation*, Oxford University Committee for Archaeology Monograph **24**, 95–98.

Carver, Martin (ed.), 1992 *The Age of Sutton Hoo; the seventh century in north-western Europe*. Woodbridge.

Colgrave, B. and Mynors, R.A.B. (eds), 1969 *Bede's Ecclesiastical History of the English People*. Oxford.

Cubitt, Catherine, 1995 *Anglo-Saxon Church Councils, c 650–c 850*. Leicester.

Doble, Gilbert H., 1997 *The Saints of Cornwall, Part 6, Saints of North Cornwall*. Llanerch, Felinfach, 28–9.

Ehwald, Rudolf, 1919 *Aldhelmi Opera*, Monumenti Germaniae Historica , Auctores Antiquissimi XV. Berlin.

Fagersten, Anton, 1933 *The Place-names of Dorset*. Uppsala.

Foot, Sarah, 1991 'Glastonbury's early abbots', in Lesley Abrams and James P. Carley (eds), *The Archaeology and History of Glastonbury Abbey*. Woodbridge, 163–90.

Fox, H.S.A., 1970 'The boundary of Uplyme', *The Devonshire Association Transactions* **102**, 35–47.

Hoskins, W.G., 1973 *English Landscapes*. BBC, London.

Lapidge, Michael, 2007 'The career of Aldhelm', *Anglo-Saxon England* **36**, 15–69.

Lapidge, Michael and Rosier, James (transl.), 1985 *Aldhelm, the Poetic Works*. Woodbridge, Suffolk.

Lewis, C.P., 2007 'Welsh territories and Welsh identities in Late Anglo-Saxon England', in N.J. Higham (ed.), *Britons in Anglo-Saxon England*. Woodbridge, 130–43.

Mayr-Harting, Henry, 1972 *The Coming of Christianity to Anglo-Saxon England*. Batsford, London.

Mills, A.D., 1998 *Dorset Place-names, their origins and meaning*. Newbury, Berkshire.

O'Donovan, M.A. (ed.), 1988 *Charters of Sherborne*, Anglo-Saxon Charters III. The British Academy, Oxford.

Putnam, Bill, 2007 *Roman Dorset*. Tempus, Stroud.

Rivet, A.L.F. and Smith, Colin, 1979 *The Place-names of Roman Britain*. London.

Souter, Alexander, 1949 *A Glossary of Later Latin to AD 600*. Oxford.

Taylor, Christopher, 1970 *The Making of the English Landscape, Dorset*. (Re-issued with a new introduction, 2004). London.

Ward, Benedicta, 2007 *A True Easter, The Synod of Whitby AD 664*. SLG, Oxford.

Nine Borderland Parishes of north Dorset: a preliminary survey

Graham Hoddinott

A preliminary study has been conducted of nine adjoining civil parishes on the north Dorset boundary. Fifehead Magdalen, Kington Magna and Buckhorn Weston bordering Somerset; Gillingham, Silton and Bourton each border both Somerset and Wiltshire; Motcombe, Shaftesbury and Cann have a border only with Wiltshire.

Considerable lengths of the boundaries with both Somerset and Wiltshire have been viewed on the ground, and walked along where public access has been straightforward. In this way an initial overview of the varying nature of the boundary has been obtained as a guide to further work and research. Appropriate note has been taken of points of possible archaeological interest, of veteran trees and coppice stools, and of other features that might repay more specialist investigation and evaluation. A complete and detailed description of the county boundary as it physically exists in 2007 will be undertaken, supported by a photographic record linked to accurate geographical coordinates.

Some evidence of past boundary adjustments in the North Dorset area can still be noted on the ground, and early work with maps from the last two hundred years has immediately confirmed a number of changes, some of them substantial, both to the county boundary and to the borders of the parishes concerned. Much further research will be needed to verify and document all such changes, with the ultimate object of establishing the line, the nature, and if possible the origins and date of the boundary from its earliest period. Eventually all this data will be cross-referenced and added to the modern boundary record.

Along the Somerset border several lengths of boundary follow the course of tributaries of the River Stour, while watercourses appear to play no part along the Wiltshire border. A large boundary bank, about 8m width, has been noted following the line of the ridge along the border in Motcombe (Plate 3). A second boundary bank of similar width, 1km in length and with a ditch on each side, was noted on the Gillingham border.

These last banks were both on the line of the Wiltshire border with Gillingham Forest. The whole of this area of north Dorset appears at times to have contained (or to have abutted upon) parts of Gillingham Forest, Selwood Forest, Blackmore Forest and Cranborne Chase, and of various smaller parks and enclosures. Investigating the creation, management and exploitation of these can be expected to shed further light upon the history of the borderland parishes.

Ancient Boundaries – living landscapes

J.A. Newbould

A synopsis of the presentation made by the author on 17 November 2007

Uniquely among today's speakers, I am not presenting a paper based wholly on historical or geographical research, but looking at the county boundary through the eyes of a natural historian and interpreting the results of our observations in the light of historic changes to land use and management. The landscape of Britain today is a result of man's historic management of the land and his manipulation of nature to feed him directly, or gain economic advantage by using natural resources. Left unmanaged, land reverts to climax woodland – a mixture of scrub and maiden trees depending on the underlying soils and geology. This situation today is only found on the most economically impoverished land usually on steep hill slopes, e.g. Kingsettle Wood north of Shaftesbury, where the old county boundary runs along a ridge to the west of the A350, which forms the modern boundary (Plate 3).

Nature also has an influence on our landscape. The county boundary is constantly being shortened at Devonshire Head when the clay cliffs fall into the sea. Landslips also occur in clay areas inland. Occasionally rivers form the boundary between two of our counties e.g. the River Blackwater between Devon and Dorset at Broom and the River Axe, which has the distinction of forming the boundary between Dorset, Devon and Somerset. Interestingly, in East Dorset it is only the modern boundary which uses a river between Hampshire and Dorset. In addition, changes in sea levels due to global warming and cooling affect the area of coastal marshes and beaches, which form our southern border.

Lyme

Katherine Barker (2005a; 2005b) has described the influence of the early Church on the Devon and Dorset border at Uplyme/Lyme Regis and which forms the subject of her report here (see above). This boundary is described in a Devon Charter for Uplyme dated 938; a much later survey of the same estate was made in 1516. The excellent interpretation of the charter bounds by H.S.A. Fox (1970, 35–47) allows many features to be identified on the ground today.

In 938 (see Fig. 4) we find 'then out to sea' complemented in 1516 by more detail; the route out to the sea was to be reached by way of 'a certain spinney at *Wythemore*' translated here as 'boggy ground with willows.' Fox (1970, 45) comments that the area 'cannot be identified on the ground, perhaps because the surface here has been greatly modified by land slipping'. Of note, however, is that Weare Cliff here has willows, with the ground dominated by Bracken. Ellenberg's

Indicator values (Hill *et al.* 2004) for Bracken shows a requirement of moisture levels of 5 – a moist soil plant requiring average levels of moisture. While thus not boggy most of the time, after prolonged periods of rain the clay cliffs would retain moisture and become wet and sticky. It cannot be known how much land here has been lost to the sea in the course of the last five hundred years. At the previous reference point of 938, XXVI, 'to *Wythilake*' (*Wythelake* in 1516) we have located the willow bed associated with Weare House (SY 330 918) at the head of small water course, OE *lacu*, running down to the sea at the Cobb. Weare House probably represents the site of the *Werboldiston* of 938, '*Wernbeald's tun*'.

North of the A35 now the A3052, the county boundary today follows the course of Shire Lane. In 938 reference point XXIII (Fig. 4) reads 'from the hazel to *Somersete*'. In 1516 a further four reference points have been inserted between 'the hazel' and the '*Somersete*'. The first two read 'then to a certain lane called *Sherelane*; and thus straight to a certain ash called *Langshereayssh*. Then follow 'and then by the western limit of the tenement lately John Chymehame's; and thence southwards to a certain hedge between the counties of Devon and Dorset, which stretches southwards to *Somersettlane*'. Fox (1970, 44) notes that *Somersete* is probably derived from OE *sumor sæte* 'summer seat', which occurs in Devon place names associated on or near hills. In 938 the boundary is thus taken from the hazel where the boundary changes direction above the *Salteforde* up the steep facing slope towards the present A3052 to the top of the hill to *Somersete* – and along what is now Shire Lane. As Katherine Barker notes here in her report, the detail given in 1516 suggests that what was then described as 'Shire Lane' was that path which followed the boundary up the steep slope above the ford, crossing the present B3165 (see Plate 1), and continuing on upslope as far as the *Langshereayssh*. From there it ran to the west of a tenement (a site still occupied) then along a hedgerow dividing the two counties and only then to 'Somerset Lane', which is most easily identified with what today goes by the name of 'Shire Lane'. Today's Shire Lane at 150m – arguably at the 'Summer seat' – gives commanding views over Lyme Bay and inland to the north east to the present A35 at Penn Hill.

The 'certain ash called *Langshereayssh*' recorded in 1516 takes it name from the OE *land-scearu* 'boundary' that is, 'land shire,' a word which Fox notes (1970, 45) 'frequently occurs in Saxon charters from the west of England and which was still being used in its original sense in 17th-century Devon'. He gives the location of the ash at a turn in the hedge at SY 328 925. It is to be identified by a 4m coppiced ash stool for which a more precise location may now be given, that is at SY 32787 92836, and located on the actual boundary bank (see Plate 2). Various figures are given for dating such old coppice stools. Rackham (2006) gives a figure of 1.4m of diameter per 400 years and 2.8m is 800 years old. An ash of a 4m diameter is arguably considerably older – it was certainly already growing in 1516. If this ash were already growing in 938 – which is possible – it would be in excess of a thousand years old. To the north of the ash a little further along the boundary there is an equally large field maple. In 938 a field maple tree is cited as a 'landmark' on the western boundary of Uplyme with Shapwick, 'then to *Mappillecnap*', referred to again in 1516 as *Mapulknappe*, that is, the 'hilltop with the maple tree' (Fox 1970, 41–2).

The *Saltforde* of 938 is represented today by the site of Uplyme mill on the Lim. And it was here in 1516 a 'white willow' was recorded, which is still to be found just below the mill buildings (SY 343 932). From here the boundary follows a course which takes it upslope immediately north of Haye Farm; it is here that the boundary reference point in 938 was given simply as 'the hazel'. Several veteran hazel coppice stools present themselves in the immediate area; their arrangement in relation to the shire boundary may have some bearing on the OE *(ge)haeg* 'hedged/close' name of the farm (see Barker forthcoming).

One important aspect of looking at the British countryside today is the absence of management of many hedges. Only a hundred years ago, in the absence of local coal, hedges would have provided an important source of fuel. These important coppice stools would have been regularly managed and thus be more visible from a distance than today.

Kingsettle, Shaftesbury

At Kingsettle Wood north of Shaftesbury the modern administrative boundary has moved eastwards from the ridge of the wood to the A350 – a road too dangerous to survey. A substantial earth bank measuring 8m wide and 1.5m high runs along the eastern side of a north–south ride through the wood, forming the former county boundary and also today's Euro-constituency boundary (Plate 3). There is veteran ash on the northern boundary perhaps 300 years old together with other veteran trees on the wood's boundary. The wood was cleared during the 19th century and is today mainly beech, sycamore, silver birch and ash plantation, together with the occasional oak and spruce. To the west is the area covering the Royal Forest of Gillingham. To the north-west, a yew marks the county and parish boundary of Sedgehill and Motcombe just west of Peake Farm. Peter Andrews discusses the significance of yew as boundary markers on the Ancient Yew Group website www.ancient-yew.org/articles.html

Handley and Pentridge

A significant proportion of field work over the past two seasons has involved surveying the Dorset–Wiltshire Boundary in Handley and Pentridge parishes. Significantly, we have available copies of the Thomas Aldwell Map of 1618 of Cranborne Chase (see Wake Smart 1841). Even without access to modern surveying

methods, this map shows the boundaries of many of today's wooded areas showing similar boundaries.

In stages, we have surveyed the Chase Woods of Rushmore Park from the Golf Course to Shermel Gate and east from there, *via* Pribdean Wood to West Woodyates to locate Bokerley Ditch in Hill Copse. During 2007, we visited Bokerley junction, twice exploring the Hampshire border across Martin Down, to the east and part of Ackling Dyke and Vernditch Chase to the west. A small party has also explored Bowling Green Lane – an ancient track-way from Martin to Pentridge (see this volume)

In summary, the form the boundary takes from Rushmore to West Woodyates varies from a hollow-way, to a shallow bank to a very wide bank on the Bower Chalke – Handley road. Rushmore estate owns the land west of Shermel Gate and pursues an active management of the woods, often reverting to traditional coppice. East of Shermel Gate, the land was sold and much of the woodland shown on the Aldwell map was cleared in the 1840s. However, what is left along the boundary shows many ancient features although adjacent land has many more modern uses. It is possible to still find examples of traditional management, e.g. 'leap and creep' (see Plate 4). This is best described as traditional hedge-laying techniques, which were used to keep animals out of coppice, then allowing deer to graze before allowing the larger domestic animals access. Of considerable significance are the large coppice stools of ash, field maple and whitebeam. The ash and maple are commonly found on old parish boundaries in Dorset and presented little difficulty in understanding. The whitebeam was more problematic and numerous enquiries were made. It was at the Dorset History Centre, where Graham Hoddinott had been searching manuscripts from the Pitt-Rivers archive that a legal document dating from 1816 concerning proposals to disenfranchise the Chase revealed the reasons for whitebeam. Uniquely in England, according the Natural England SSSI designation for Cranborne Chase, whitebeam, along with holly, [haw]thorn, crab, maple and ivy berries were used for winter browse for the deer. 'Deer in the Season resort to trees in great numbers for the Fruit, particularly to the White Beam.'

The boundary both east and west of Pribdean Wood has particularly good examples of ancient ash, maple, hawthorn, holly and whitebeam (Plate 5). Again, other evidence for the antiquity of this border country comes from the 956 Saxon Charter for Handley (Grundy 1936). However, the oaks mentioned in this charter at the junction of Handley and Pentridge parishes are not the specimen seen today, which are only 100 years old. On the Chalke–Handley road the boundary presents today as a 14m-wide bank on the Pentridge side (Plate 6) while only 6m wide on the Handley side (SU 00353 19524). The boundary is here followed by coppiced hazel (Plate 7; see Barker forthcoming). At Sessions Gate (shown on the Atwell map), the footpath from Chalke to Handley passes through a wide clearing surrounded by old holly. Again this would have made an excellent area to keep animals on the move overnight and provide good browse.

At Horse Leys the boundary turns north-east, crossing the northern boundary of Denbose Wood and then eastwards past Cobley Farm to Cutler's Corner. The northern salient formed here by the county boundary round Cobley Farm suggests an arrangement post-dating the boundary structure presented by the course of Bokerley Dyke (Barker forthcoming). Regrettably there is no public access along this section. However, we have surveyed from Cutler's Corner to Bokerley junction. From Cutler's Corner, there is a footpath, which another party wishes to upgrade to a 9m-wide public road. The track has a boundary bank 0.5m high on both the Dorset and Wiltshire side. Although the Dorset side is well wooded, the Wiltshire side has little scrub, although at SU 0295 2128, there are two oaks opposite each other with the track 4.20m wide. Coppiced whitebeam is found along the track, together with stools of oak, maple, and holly. The actual junction of the three counties of Wiltshire, Dorset and Hampshire is marked with a whitebeam. Although much of Vernditch Chase is given over to modern forest, the southern tip is managed as part of the Martin Down National Nature Reserve (NNR). Adjacent to the three counties junction the Chase has numerous old coppiced oaks. Elsewhere there were many coppiced whitebeam (Plate 8) in an ash–maple–dog's mercury woodland, with many interesting wild flowers including wild aquilegia and greater butterfly orchid.

At the end of May 2007, the group walked eastwards along Martin Down, investigating Bokerley Ditch. At Bokerley Junction, east of the A354, the bank has a ditch on the northern Hampshire side and is nearly 8m high and 15.5m wide at the base. To the west, there is no ditch with a bank barely a metre high. From Bokerley Junction, Hampshire County Council claim that the boundary with Dorset runs along the centre of the bank. This late Romano-British ditch crossing four miles of downland is referred to in the bounds of Martin (Hampshire) as *magnum fossatum de Blakedounesdich*. In 1280 it is *Bockedic*, the *Bucke Ditche* of 1618, 'the ditch where bucks are to be found' from OE *bucc* and *dic* being a reference to hunting in Cranborne Chase. Bok*erley* perhaps representing OE *leah* 'wood' 'clearing' (Mills 1980, 235–6).

To the south, the Dorset landscape is chiefly prairie farming, repeatedly referred to by Bond (2006) as the large area of open downland between Cranborne and Dorchester, which was hardly enclosed before the Enclosure Awards. Rackham considers this area part of England's planned countryside (Rackham 2006). Although the ditch is part of the NNR, in natural history terms it is relatively uninteresting often dominated by scrub, especially on the Dorset side. To my surprise, unlike the ramparts of Hod Hill and Maiden Castle, the

bank is not composed of the fine herb-rich chalk grassland, but the more rampant NVC type MG1 grassland. This is of course compensated on the Hampshire side by the fine chalk grassland of the old rifle range where we saw Burnt-tip Orchid in flower. A single Juniper on the Hampshire side is a relic population of larger colonies elsewhere in the area, e.g. Dene Park, Wiltshire and Wimborne St Giles Park, Dorset, but these colonies await detailed surveying. There is a considerable amount of surveying to do east of the Jubilee trail, including investigating Blagdon Park.

BIBLIOGRAPHY

Barker, K, 2005a 'The Sherborne estate at Lyme', in K. Barker, D. Hinton and A. Hunt (eds), *St Wulfsige and Sherborne, Essays to Celebrate the Millennium of the Benedictine Abbey 998–1998*. Oxbow, 199–204.

Barker, K., 2005b 'Of salt and the Dorset coast at Lyme', *Proceedings of the Dorset Natural History and Archaeological Society* **127**, 45–52.

Barker, K., forthcoming 'Ancient bounds and borders; shires, counties and the limits of the AONB', in K. Barker (ed.), *The Chase, The Hart and The Park*. Cranborne and West Wiltshire Downs Area of Outstanding Natural Beauty, Occasional Papers Series no. 1.

Bond, J., 2006 'A kaleidoscope of regions', in B. Cuncliffe (ed.), *England's Landscape – The West*. English Heritage, London, 118–19.

Fox, H.S.A., 1970 'The boundary of Uplyme', *The Devonshire Association Transactions* **102**, 35–47.

Grundy, G.B., 1936 'Saxon charters of Dorset; Handley', *Proceedings of the Dorset Natural History and Archaeological Society* **58**, 103–36.

Hill, M.O., Preston, C.D. and Roy, D.B., 2004 *Plantatt – Attributes of British and Irish Plants*. Centre for Ecology and Hydrology, Abbotts Ripton.

Mills, A.D., 1980 *The Place-names of Dorset*. English Place-name Society vol. LIII.

Muir, R., 2005 *Ancient Trees – Living Landscapes*. Tempus, Stroud.

Pollard, E., Hooper, M.D. and Moore, N.W., 1974 *Hedges*. Collins, Glasgow.

Rackham, O., 2003 *Ancient Woodland, its History, Vegetation and Uses in England*. Castlepoint Press, Dalbeattie.

Rackham, O., 2006. *Woodlands*. Collins New Naturalist **100**, London.

Read, H., 2000 *Veteran Trees: A guide to good management*. English Nature, Peterborough.

Wake Smart, T W., 1841 *A Chronicle of Cranborne Chase*. (Second edition with an introduction by Desmond Hawkins, 1983.) Stanbridge, Wimborne.

Williamson, T., 2002 *Living Landscapes – Hedges and Walls*. The National Trust, London.

Lost in Suburbia: tracing the County Boundary in south-east Dorset

Iain Hewitt

The 1974 revisions to the course of the county boundary had a particularly profound impact in south-east Dorset. Here there was no minor tinkering. The Hampshire towns of Bournemouth and Christchurch were transferred to Dorset and as a result, the ancient boundary between Dorset and Hampshire became almost obsolete because a new line of demarcation was set out at Chewton Bunny (chine) to the east of Highcliffe (Coates 1989, 52). This new boundary has not been included in this survey for it is a product of late 20th-century demographics and fiscal necessity; it has no association with the Late Saxon administration of the shires.

The original and historically traceable divide between Dorset and Hampshire has also served as the boundary between the modern towns of Poole and Bournemouth. Specifically, it formed a gentle westwards arc from the River Stour in the north to a point between Branksome Dene and Alum Chines on the coast to the south. In this location it can be traced on a number of historical maps from that of Christopher Saxton (1575) through to Richard Blome (1673) and Edward Weller (1863) (Beaton 2001). Variations between these and other historical maps are minor and one is drawn to conclude that generally, the position of the south-east boundary has been stable until 1974. Nevertheless, it should be noted that each map maker is likely to have borrowed from his predecessors and this was particularly endemic in the 17th century. New 'on the ground' surveys were a rare event and until the 18th century most maps were derivatives of the county maps produced by Saxton and Norden during the final quarter of the 16th century (Hindle 1998, 11–12).

Origin of the south-east boundary

Dorset and Hampshire lie in an east–west relationship. The decision to set them apart demanded a north–south boundary line. This could have been most easily achieved by exploiting a natural feature such as the course of the River Avon, which drains into the sea at Christchurch Harbour. Indeed, it is the Avon that has good credentials for having been the physical demarcator between the Iron Age territories of the *Atrebates* (Hampshire) and the *Durotriges* (Dorset). Such an assertion is given substance by the presence of the Iron Age trading centre at Hengistbury Head, a point close to the Avon's shared estuary with the River Stour. As late as the 1540s, John Leland wrote that the river by Christchurch was the boundary between Dorset and Hampshire (Cochrane 1970, 43) though this notion is not supported by cartographic evidence. Saxton's 1575 map of Hampshire shows the Dorset boundary to be west of the River Avon in the region of Alum Chine. This broadly agrees with Norden's map twenty years later that shows the boundary to be a little to the west of the 'Allom Chine copperas house' (Norgate and Norgate 2006).

A further indicator of the ancient pedigree of the pre-1974 south-east Dorset boundary is that it served a dual role as the division between the Dorset manor of Canford Magna and the Liberty of Westover (Hampshire). Canford was a Domesday Manor held by Edward of Salisbury in 1086 and before him by Wulfwen in 1066 (Morris 1983). Traditionally, Canford included the site that was later to develop into the town of Poole but which is not mentioned by name in Domesday Book.

The Liberty of Westover on the Hampshire side was a more complex entity. First recorded in the 13th century (Coates 1989, 173), by 1802 Westover comprised a collection of six tithings: Holdenhurst, Throop, Muscliff, Muckleshell, Iford, and Pokesdown (Young n.d.). Of these, Holdenhurst had a small church that was effectively a chapel of Holy Trinity, Christchurch (now known as The Priory). In discussing the place-name origin, Coates notes that on balance Westover refers to 'land west of the Stour', a description that makes sound topographical sense because the northern and eastern limits of Westover are determined by the course of that river (1989, 173–4). However, Westover's western boundary with the Dorset manor of Canford Magna and its relationship to specific landscape features is less easy to determine. Cochrane (1970, 42) hints that the origin of Westover lies in the presence of a Jutish territory in the New Forest on the western edge of the Kingdom of Wessex in the 6th and 7th centuries AD, and this argument was also favoured by Barbara Yorke (1995, 88). Convincing evidence of a Jutish province in this area is not yet available and it is a notion that must be treated with caution. Nonetheless, the history of the Liberty of Westover argues the case for the antiquity of this common bound with Canford Magna and therefore as the traditional point of demarcation between Dorset and Hampshire.

Topographical evidence for the south-east Dorset boundary

Maps dating from the 16th and 17th centuries indicate that the southern end of the south-east county boundary lay on the coast just to the west of Alum Chine, close to what was known as the *Allom House*. Most of the early cartographers agree that from the coastline, the boundary continued northwards along the course of a stream or bourne. Taking into account possible vagaries in the accuracy of the historic maps, and allowing for lack of familiarity with the nature of the terrain by those who produced them, it is also possible that the boundary ran close to Branksome Dene Chine. Another candidate is Branksome Chine, for this has a more obvious stream within it, making it more consistent with the cartographic evidence. Further north of the chines, the course of the boundary is more difficult to determine but a consensus of the historic maps has it crossing the River Stour at a very definite southward loop in the course of the river. Unfortunately, between coast and Stour the maps are generally devoid of helpful reference points.

The many uncertainties associated with the course of the south-east bound of Dorset may be attributed to the nature of the land use in that area until the Christchurch Inclosure Act of 1802 and its aftermath. Up until the 1800s much of Westover and the adjacent Dorset parishes comprised a single, continuous tract of heathland variously known as Poole Heath, Canford Heath, or the Great Heath. The soils in this area are acidic, sandy and thin providing excellent conditions for the growth of heathers, coarse grasses and gorse. Finding one's bearings in such a wilderness must have been a challenge, an example of which was described by the Duke of Rutland in 1765,

> 'From Christchurch we proceeded on horseback towards Poole. After going about two miles on the high road, we turned off by the advice of a farmer, who told us, we should find a much shorter walk by going to the left, which however would not do for a carriage. We accordingly followed his direction until we came to a cliff, where we could not find the least track of a road. ...We rode as we thought in the direction of Poole, for on barren and uncultivated heath where we were, there was not a human being to direct us...' (cited by Popham and Popham 1985, 14–15; Young 1970, 20).

The human exploitation of this seemingly featureless landscape must have involved seasonal grazing on the common 'wastes', and at present it is not clear to what extent intercommoning was practiced by the tenants of Canford Magna and Westover. As Katherine Barker has observed, intercommoning was a feature of borderlands (2007, 137). Cross-boundary grazing would not have encouraged the establishment of a clearly defined boundary line, though this was a situation that changed dramatically when the Inclosure Commissioners set about the task of accurately surveying and parcelling up the heathland. From the 19th century onwards, the south-east Dorset–Hampshire boundary took on a much more formalised appearance, one that has a familiar look to it on modern maps and which remained largely intact until another set of commissioners began their work nearly 170 years later.

The boundary at risk

The virtual privatisation of the Great Heath had another consequence that, indirectly, was to have a profound effect upon the future of the south-east Dorset county boundary. The acid soils of the heath were not suitable for cultivation. The newly enclosed land, deprived of its pastoral function, was relatively cheap and the new owners saw this as an opportunity to exploit land for development. First, it was along the coastal fringes, but the trend was to continue largely unchecked until the medieval town of Poole and the 19th-century resort of Bournemouth provided the nuclei for the development of suburbs. By the mid-19th century the suburbs had fused and the boundary became subsumed within an urban landscape.

It was against this background that C. Cochrane published his book on Poole Bay and Purbeck (1970), which included a short description of the pre-1974 Dorset–Hampshire boundary within the south-east suburbs. As such, Cochrane offers what may be the only commentary upon this stretch of the boundary that is worthy of note (1970, 42–7). Based upon what Cochrane considered to be the line of the boundary, his remarks

Figure 6: Boundary Road looking north from Wallisdown. The road that Cochrane would have known is on the extreme right. Iain Hewitt

are speculative in places but deeply intuitive in others. By way of introducing his topic he wrote,

> '...there are still some unpaved stretches of this ancient boundary...left open between the Stour and the coast, and they should be set down in detail before they all become obliterated in the ever-growing suburbs...' (1970, 44).

In fulfilment of this stricture, Cochrane plotted the remaining evidence for the boundary starting north of the Stour and proceeding southwards to the coast. He was committed to the view that the course of the boundary was identical to that of an ancient road and for this reason he looked for evidence of the road at every stage. This might be regarded as flawed logic since Saxton, for example, omitted roads from his county maps of the 1570s, thus leaving no evidence for the road network of his time (Beaton 2001, 12). Nevertheless, Cochrane's fieldwork has provided a platform upon which to review the evidence forty years onwards.

Cochrane's route retraced

During the autumn of 2007, Cochrane's route was retraced, starting at the south bank of the River Stour at Redhill and proceeding southwards via Wallisdown and Westbourne to the coast at Alum Chine. Points of similarity and change were noted and a photographic record was made (Fig. 6). The initial results may be summarised as follows.

1. **Threats** The most obvious threat has been the continued development of transport infrastructure. An example of this has been the 'upgrading' of sections of Boundary Road between Ensbury Park and Wallisdown. This road has changed dramatically since 1970 when Cochrane was able to write, 'after a made-up stretch (the road)... reverts to nature...' (1970, 45), a description that could not now be applied to any point on this road.
2. **Surviving features** The number of obvious boundary features is much reduced and of those that survive, most are on the eastern limit of Highmoor Farm between Wallisdown and the prehistoric Fern Barrow. At the Wallisdown end a boundary pillar of *c.* 1887 survives, proclaiming the County of Dorset on one side and the Hampshire parish of Holdenhurst on the other (Fig. 7). South of this is a tree-capped double ditched boundary bank. A relic of the Great Heath can be found on the Dorset side.
3. **The coast** South of Westbourne to the coast the course of the boundary has proved difficult to identify. Probably it did run along the top of one of the chines where it would have been easily visible. However, Griffith and Wilkes remind us that landmarks may have relevance if viewed from the sea (2006, 67–91). It is also possible that coastal shire boundaries once extended beyond the shoreline in order to include territorial fishing limits and zones of responsibility for coastal defence. Preliminary work on the south-east Dorset boundary has included a shoreline survey but there has been some significant coastal erosion that needs to be factored in.

Figure 7: Boundary marker at Wallisdown. The plaque heralds entry into the county of Dorset (c. 1887). Iain Hewitt

Investigation of the south-east bound between Dorset and Hampshire is not exhausted and there is much historical and topographical research that remains to be done.

BIBLIOGRAPHY

Barker, K., 2007 'The Dorset County Boundary Survey, a first report', *Proceedings of the Dorset Natural History and Archaeological Society* **128**, 137–8.

Beaton, D., 2001 *Dorset Maps*. Wimborne.

Coates, R., 1989 *The Place-names of Hampshire*. London.

Cochrane, C., 1970 *Poole Bay and Purbeck 300 BC–AD 1660*. Dorchester.

Griffith, J.M. and Wilkes, E.M., 2006 'The land named from the sea? Coastal archaeology and place-names of Bigbury Bay, Devon', *Archaeological Journal* **163**, 67–91.

Hindle, P., 1998 *Maps for Historians*. Chichester.

Morris, J. (ed.), 1983 *Domesday Book, Dorset*. Chichester.

Norgate, J. and Norgate, M., 2006 *Old Hampshire Mapped*. www.geog.port.ac.uk. [Accessed 24.1.2008].

Popham, D. and Popham, R., 1985 *The Book of Bournemouth*. Buckingham.

Yorke, B., 1995 *Wessex in the Early Middle Ages*. London.

Young, D.S., 1970 *The Story of Bournemouth*. Second edition. Wakefield.

Young, J.A. n.d. *Bournemouth and the Christchurch Inclosure Act 1802*. Bournemouth.

The Dorset County Boundary: proposal for the creation of a digital boundary atlas

Mark Ford

As well as conferences and academic papers appearing here and elsewhere, we are considering the possibility of making information we gather accessible to a wider audience through the Internet. We also hope to use modern technology to add impact, to stimulate further research and perhaps to provide unexpected insights.

A clear and appropriate framework for this task is a map of some sort to create a digital Boundary Atlas. However a major constraint is the high cost of republishing modern OS mapping and until efforts to make the data freely available to non-profit making organisations bear fruit, we must look elsewhere. Google Earth has aerial photographs and material of the sort that might suit us.

Interesting possibilities are suggested by the teaching-aid created by Mike Bishop for the *Per Lineam Valii* web site, in which he has superimposed photographs, texts and links to other sites onto Google Earth map of the Hadrian's Wall area. He has even attempted to simulate a helicopter trip along the Wall. His work can be seen by downloading the KML file from http://tinyurl.com/39tsgk. It will open in Google Earth.

The Google Earth image of Dorset's county boundary is of high quality throughout its length and, as a data-rich linear feature, lends itself to a similar treatment. It would be possible to assemble notes, reports, papers, photographs, and sets of natural history data in a 'mash-up' available to anyone who might wish to consult them. Links to material stored on the DHNAS website and elsewhere are possible.

We are currently working on a suitable recording format and will trial our efforts in the coming year in order to make it public when it has sufficient rigour to match the quality of the research that it will display. We intend to make the natural history elements of the data easily available to researchers in other fields.

BIBLIOGRAPHY

Bishop, M.C., n.d. *Per Lineam Valli*, http://perlineamvalli.org.uk/

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 217–268

NATURAL HISTORY REPORTS

DORSET GEOLOGICAL REPORTS

The following three reports are contributed by Paul Ensom (contact details below).

Paul C. Ensom
Holly Tree House
Croquet Gardens
Wivenhoe
Essex CO7 9PQ
P.Ensom@pensom.fsnet.co.uk

Introducing review articles on the geology of Dorset

Following the inscription in 2001 of the Dorset and East Devon Coast, 'The Jurassic Coast', on the World Heritage List, the time was ripe for the *Proceedings* to take a lead in publishing review articles dealing with different aspects of Dorset's geology, including geomorphology which is the subject of our first review.

An article on the geomorphology of Dorset is a most appropriate point to begin for two reasons. Firstly, Dorset has been at the forefront of studies into landslip evolution and more broadly coastal evolution. Secondly, geomorphology can be seen as the continuation of an age-old process where the geological past meets with the uncertainties of the present. Whether you live in Dorset, or visit from time to time, the landscapes of the coast and inland play a significant part in defining the character of the county. With climate change forcing a rise in global sea level, and with more climatic extremes predicted, we are likely to see increasingly rapid changes to the landscapes we know in the decades to come. Geomorphology has, and continues to play an important role in helping us to understand and plan for those changes.

We are very grateful to Vincent May, Professor Emeritus of Coastal Geomorphology and Conservation at Bournemouth University, Chairman of both the Jurassic Coast Science and Conservation Advisory Group, and Purbeck Heritage Committee, and much involved in geoconservation and coast management within Dorset, for so willingly taking up the challenge and writing his comprehensive, 'Geomorphology of Dorset: A review', which appears on pages 149–62 of this volume.

Jurassic Coast World Heritage Site Research Questionnaire – Spring 2008

In January 2008, an important initiative was launched by the Jurassic Coast World Heritage Team (JCWHT) to encourage research along the Jurassic Coast. To help this process, the JCWHT have commissioned the Science Research & Innovation Centre of the University of Plymouth to gather evidence from the science community and major stakeholders, as to how the Jurassic Coast World Heritage Site Research Strategy should be developed and implemented over the next 5 and 10 years. Their report is to be submitted to the JCWHT by 31 April 2008.

A problematic fossil from the Cherty Freshwater Member, Purbeck Limestone Group, of Dorset

Curious plant-like stems were briefly described and illustrated in last year's volume of the *Proceedings of the Dorset Natural History and Archaeological Society* (Volume **128**, 139–41). An appeal was made for anyone who thought they could identify the origin of the specimens to make their views known. There has been no response and no new ideas from other sources have been received. For now at least, the origin of these specimens remains uncertain.

Exceptional fossils from the Intermarine Member, Purbeck Limestone Group, early Cretaceous, Durlston Bay, Swanage, Dorset: implications for our attitudes to collecting

Richard Edmonds, BSc, Earth Science Manager
Dorset and East Devon Coast World Heritage Site Team
Department of Environmental Services
Dorset County Council, County Hall
Dorchester DT1 1XJ
e-mail: r.edmonds@dorsetcc.gov.uk

Introduction

In March 2007 a small cliff fall took place in the north side of Durlston Bay, creating an unusual opportunity to observe and collect fossils from freshly fallen parts of the Intermarine Member of the Purbeck Limestone Group (Fig. 1). The cliff fall involved a low bluff of strata from just above the Roach (Bed 125 Clements 1993) through to the Red Rag (Bed 133). A superb crocodile skull (Fig. 2) was recovered, partly from the rock fall and from the cliff face. Unusual plant remains were also recovered at the time and later in the summer.

History of the discovery

Two of the three specimens were discovered by the author on 28 March 2007, when carrying out site monitoring of the geological interests of the World Heritage Site. The rear of the crocodile skull was recovered from a fallen block on 31 March, and the remainder of the skull was recovered from *in situ* on 14 April 2007 with assistance from Chris Moore and Steve Etches, having secured the requisite permissions.

Location and stratigraphy

The rock fall occurred at the north end of Durlston Bay, Swanage, NGR SZ 038 785. The specimen was recovered from Bed 128 or 129 (Clements 1993) of the Intermarine Member, in between or just below the 'Shingle' and the 'Shed Bed', Purbeck Limestone Group. The specimen was located 0.06 m above the base of a strongly laminated shale bed. The skull was lying upside down with the snout's long axis orientated at approximately 320° from magnetic north.

Preparation

Preparation of the specimen was carried out by Chris and Alex Moore, and the costs were covered by the Jurassic Coast Trust. The specimen was prepared from the underside (the dorsal surface, the specimen being upside down). There is a small repair across the line of the original break and the crack has been filled with palaeo-putty and painted to match the original colour. Sections of shale have been inset around this break and similarly repaired. The back contains two stainless steel rods set into the shale (but outside the area containing the specimen) and fibre-glassed into place to give structural support to the entire block. There is a small excavation to expose a tooth and socket from inside the upper jaw.

Figure 1: Rock fall, Durlston Bay, March 2007

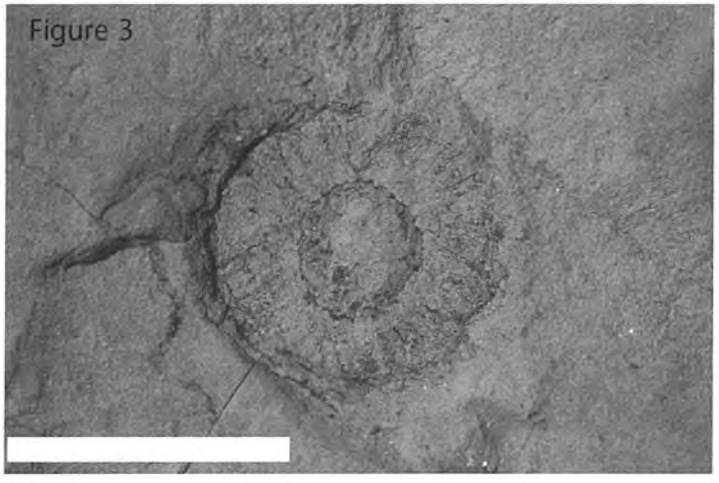
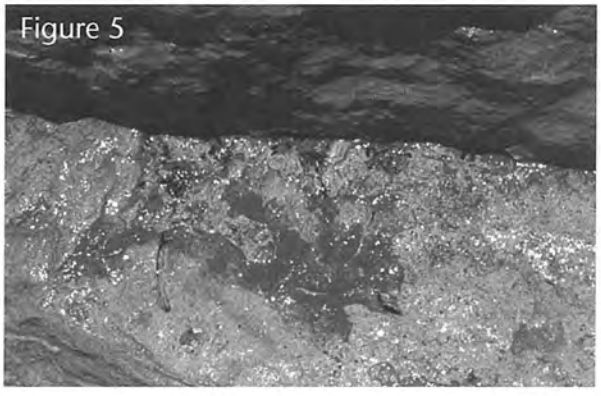


Figure 2: Crocodile skull recovered in April 2007 (scale 60 cm)

Figure 3: Plant material recovered from the fall in April (scale 25mm)

Figure 4: Plant material observed on 8 August 2007 (scale 60mm)

Figure 5: The same plant material damaged by the sea, 16 August 2007



Identification

S. Salisbury has described the specimen as the finest example of *Goniopholis simus* known (pers. comm. November 2007). The specimen is to be fully assessed by Bristol University.

Ownership

The back of the skull was discovered loose in the cliff fall. The front of the specimen was recovered *in situ* with permission of the landowner, Swanage Town Council, and with consent from Natural England. The interpretation of the ownership is between Dorset County Council, as the author's employer, and Swanage Town Council. The grant from the Jurassic Coast Trust requires the specimen to remain in Dorset. It is anticipated that the specimen will be donated to a registered museum in the county with the expectation of a loan to Durlston Castle when re-developed as a landmark centre for the Dorset and East Devon Coast World Heritage Site.

Further finds

In addition to the spectacular crocodile skull, two separate plants, both previously unrepresented in the Natural History Museum collections, were recovered from strata exposed in the rock fall. The first (Fig. 3) consisted of numerous circular structures, typically 25mm in diameter, contained within a pale clay from the vicinity of Bed 130. Within two months of their exposure most had been washed away or seriously degraded by the weather. Three specimens were collected and one has been donated to the Natural History Museum, London. Tentative identification (P. Hayes, pers. comm. October 2007) suggests stem sections of *Equisetites*, though I. West (pers. comm. November 2007) has suggested the fossil genus *Williamsonia* from the cycad-like Bennettitales.

The second plant (Figs 4–5) was observed during a visit in August to collect data from the crocodile site, and had become exposed when the large fallen block that had contained the back of the skull had split open. Sadly, this specimen was damaged by rough weather before it was possible to return to recover it. The specimen included delicate foliage, some of which extended into the block and this was recovered. It is now in the Natural History Museum, London, and awaits description.

Site condition.

What do these observations tell us about Durlston Bay? The fossils are uncovered as a result of unpredictable and infrequent cliff falls. When these cliff falls take place the fossils become exposed and are at risk of being damaged by the sea. The observable natural damage to some specimens would suggest that rather than there being too much collecting effort, a view held by some, there is not enough, and specimens are in danger of being destroyed by the sea. Scientists prepared to make the effort to visit the Bay are finding specimens of scientific importance. The author met Drs D. Martill, R. Coram, and I. West while carrying out site monitoring in the summer of 2007; their work is increasing our knowledge of this important geological site. In the case described above, the delay in obtaining permission to excavate from *in situ* represented a risk to the specimen from irresponsible collectors or the weather. This issue has been recognised and streamlined in the West Dorset fossil collecting code where the frequency of occurrence of important specimens is much higher. Due to the slower rates of erosion and lack of regular collectors, this approach is unlikely to be as useful in Durlston Bay.

Acknowledgements

I would like to thank Chris and Alex Moore, and Steve Etches for their help in recovering and cleaning the specimen, the Jurassic Coast Trust for covering the costs of preparation and Peta Hayes, Steve Salisbury and Ian West for their comments on the specimens found. Finally, I would like to thank Paul Ensom for his continued encouragement to contribute to the *Proceedings* and his ever helpful comments on the content of such articles.

BIBLIOGRAPHY

Clements, R.G., 1993 'Type-section of the Purbeck Limestone Group, Durlston Bay, Swanage, Dorset', *Proceedings of the Dorset Natural History and Archaeological Society* **114**, 181–206.

'Lost' Purbeck lizard skull re-emerges

Susan E. Evans
Department of Anatomy & Developmental Biology
University College London, Gower Street
London WCIE 6BT
ucgasue@ucl.ac.uk

More than a decade ago I was given a file of reprints and old documents from the office of the late Pamela L. Robinson (University College London). Among them was a sheet of paper to which a small photograph of a lizard skull was attached, but no other information. The skull appeared well preserved and the fine matrix looked similar to some of those represented in the Purbeck Limestone Group. The specimen was not from the Natural History Museum (NHM) or Dorset County Museum collections, and no-one I contacted knew anything about it. Recently Drs Angela Milner and Paul Barrett (NHM) returned from the British Geological Survey's collections (BGS) at Keyworth, Nottinghamshire, with news of a Purbeck Limestone Group lizard skull. The mystery had been solved, with BGS GSb581 becoming the most complete lizard skull currently known from the Purbeck Limestone Group. Most Purbeck lizards are represented by isolated jaws or, at best, associations of disarticulated bones; the new skull is fully articulated and almost complete, although unfortunately the lower jaws are missing.

The lizards of the Purbeck Limestone Formation constitute one of the most diverse lizard assemblages is known from the Early Cretaceous, with eight named genera and several additional morphotypes represented by fragmentary jaws and teeth (Evans and Searle 2002). The Keyworth specimen is labelled as *Paramacellodus oweni*, one of the most widely recorded Late Jurassic–Early Cretaceous lizard genera, but this is not correct. *Paramacellodus* has been described from the Purbeck Limestone Group and also from partially articulated material from the Morrison Formation of North America (Evans and Chure 1998). BGS GSb581 is quite distinct in its cranial and dental anatomy. Furthermore, it also lacks the characters of other well-known Purbeck lizard taxa (*Dorsetisaurus*, *Becklesius*, *Parviraptor*, *Parasaurillus* and *Pseudosaurillus*: Evans 1994; Evans and Searle 2002). More detailed study will follow; without question the Keyworth skull is an important addition to our knowledge of Purbeck lizards.

BIBLIOGRAPHY

Evans, S.E., 1994 'A new anguimorph lizard from the Jurassic and Lower Cretaceous of England', *Palaeontology* **37**, 33–39.

Evans, S.E. and Chure, D., 1998 'Paramacellodid lizard skulls from the Jurassic Morrison Formation at Dinosaur National Monument, Utah', *Journal of Vertebrate Paleontology* **18**, 99–114.

Evans, S.E. and Searle, B., 2002 'Lepidosaurian reptiles from the Purbeck Limestone Group of Dorset, Southern England', *Special Papers in Palaeontology* **68**, 145–59.

DORSET RAINFALL 2007

John Oliver

THE WETTEST YEAR SINCE 2002

The general rainfall across Dorset in 2007 amounted to 1024.4mm. This was the highest annual total since 2002 and represents 113% of the 1971–2000 average.

The wettest station was Melbury Sampford with 1289.8mm and the driest was Portland Bill, recording just 685.2mm. The highest 24-hour rainfall total was 59.0mm on 18 November at Turnworth. All observers reported at least one day with more than 25mm of rain and at five stations there were nine days.

The monthly distribution of rainfall and thunder days is given in Table 1.

Most stations reported two lengthy dry periods in 2007. The first was of at least 21 days duration from 31 March and the second of around 24 days from 21 August.

Milborne Port recorded no measurable rainfall throughout April and clocked up 35 rainless days from 1 April to 5 May.

GENERAL REPORT

January

The first three weeks of 2007 were very mild, unsettled and breezy with rain at times. The rain was occasionally heavy with thunder reported on the 1st and 20th. The 19th was an exceptionally mild day with a general dawn base temperature of 10C and an early afternoon peak of 14.5C at East Stour.

Table 1: Monthly rainfall and thunder days

Month	Raindays* >0.2mm	Rainfall* (mm)	1971–2000 av. (mm)	% of average	Days of thunder
January	19	95.9	100.1	96	2
February	20	126.8	75.2	169	2
March	14	71.6	74.9	96	1
April	3	6.3	58.2	11	2
May	8	119.4	54.8	218	4
June	16	110.1	57.5	191	8
July	22	111.4	43.1	258	6
August	10	70.5	63.2	112	3
September	10	40.0	80.4	50	0
October	9	45.3	93.8	48	0
November	11	129.3	96.7	134	3
December	15	97.8	111.7	88	1
Year	**167**	**1024.4**	**909.6**	**113**	**32**

* Rainfall and Rainday averages have been calculated from the stations that record rainfall to an accuracy of 0.1mm.

The last ten days of the month were, apart from occasional snow flurries from 23rd–26th, mainly dry and briefly cold with night frosts. On the morning of the 26th a temperature of –5.3C was noted at Blandford. Mild conditions returned to end the month.

In low-lying parts of Dorset this was the 20th successive January with not one day of snow-lying on the ground at 0900hrs.

February (The wettest since 1995)

The month opened with a week of settled weather with variable cloud cover and only gentle winds. After a very mild start it became progressively colder with night frosts.

During the early hours of the 8th a frontal system linked to a depression to the SW of the UK brought rain to coastal Dorset but as it tracked north into the colder air precipitation turned readily to snow. At Iwerne Minster 2cm was reported but even at Shaftesbury where the depth reached 7cm at 0600hrs it had all melted by 1300hrs.

The remainder of the month was unsettled and very mild with rain on most days. This period was virtually frost-free but much windier, with a gust of 67mph at Weymouth on the 11th.

The winter period (December to February) was the warmest on record. The number of air frosts was the lowest since season 1974/75.

March

Mild and unsettled conditions prevailed until the 10th with strong winds that gusted to 54mph at Dorchester on the 5th. Influenced by high-pressure systems, the last three weeks of March were mainly dry and quite sunny. It was predominantly mild but there was a brief colder spell from 18th–22nd with showers that produced a little sleet, soft-hail pellets and hill snow. A dry easterly airflow off the near continent brought some early warmth on the 27th and temperatures reached 18C widely with 18.9C at Blandford.

Weymouth reported its sunniest March on record at 222.6 hours.

April (The warmest on record and the driest since 1984)

This was a very dry, sunny and warm month, raising hopes of a long hot summer. Rain fell on just three days (averaged across the county) and amounted to about 6mm. Temperatures climbed as high as 25C at Wimborne and Blandford in mid-month and these values were repeated towards the end of the month. Clear skies enabled the mercury to fall to light frost levels on a few nights in the first three weeks.

At Weymouth 255 hours of bright sunshine was recorded through the month.

May (The wettest since 1979 and fifth wettest in 100 years)

The first five days were sunny and dry with daytime temperatures slowly cooling to normal values. The 6th heralded a change to chilly and breezy weather with some heavy rain at times – notably the 13th, with 25mm recorded widely. At Dorchester this was the wettest May day since 1957.

After a somewhat drier and warmer period from 17th–25th with temperatures locally up to 25C, unsettled and very cool conditions returned. The 27th was thoroughly wet and breezy and the coldest day for nine weeks with maxima close to 10C.

June (The wettest since 1991)

The change of month brought a change in the weather and the first 13 days were dry and warm with an abundance of sunshine. The temperature reached 27.3C at Blandford on the 9th and 25C more generally.

Low pressure dominated the weather throughout the second half of the month with large amounts of cloud and some rain on most days. Temperatures only occasionally reached the average for the time of year. The heaviest rainfall was reserved for the last day.

The 12-month period ending June 2007 was the warmest in 45 years with an overall mean temperature at Dorchester of 12.14C. After applying correction factors for comparison with the Central England Temperature (CET) series back to 1659, it would appear to be the warmest in 350 years.

July (The wettest since 1978 with the most raindays since 1936)

The jet stream was well south of its usual summer position throughout the month and fed a succession of Atlantic weather systems directly across the UK. The mean barometric pressure was the lowest for July since 1988. Rain fell on 22 days, averaged across the county, and amounted to 111mm.

Despite the unsettled nature of the month Weymouth accumulated 227 hours of sunshine representing 99% of the average.

July was the coolest since 1988 and the extreme maximum temperature of 22.2C at Dorchester was the lowest for this month since 1965.

August

The first 12 days were warm with a good deal of sunshine but with some showery outbreaks of rain on the 2nd and 7th. Inland temperatures climbed to 28C at Thornford and Blandford on the 5th.

The period from the 13th–20th was unsettled and cool with some rain – very heavy overnight on the 13th with totals of 25–40mm recorded by many observers.

The last 11 days were totally dry for most stations, much warmer and with plenty of sun. Temperatures again climbed towards 28C on the 25th.

The August mean temperature was the lowest since 1993.

September

The first two weeks were dry and warm with periods of sunshine and inland temperatures approached 26C on the 6th and 7th. Many observers had recorded 24 consecutive dry days by the time patchy rain set in on the 14th. Wyke Regis and Wimborne escaped this rain and remained dry until the 19th, clocking up 29 dry days.

Although the second half of the month was much more unsettled, amounts of rain were small except for the 23rd and 30th. A cold northerly airflow on the 26th and 27th limited day maxima to just 13C.

October (The driest since 1985)

This was a quiet month under the influence of high pressure. Rainfall amounted to only half of the average with most of it resulting from downpours on the 16th and 28th. Around 35mm of rain was collected at Rampisham and Melbury Sampford on the former date.

Temperatures were generally close to expected values and sunshine at Weymouth amounted to 140 hours – 22% above the average. The first frosts of the new season occurred between 19th and 23rd.

November

The first half of November continued the dry theme and it was generally mild with the temperature hitting 17C in several places on the 1st and 2nd. There were some sharp overnight frosts between 12th and 16th with temperatures as low as –5C at Blandford and Dorchester.

The 17th–21st was exceptionally wet and cool over the bulk of the county with some localised flooding. Rainfall aggregates for the period ranged from 53.5mm at Milborne Port to 149.0mm at Turnworth. The 18th was the wettest day of the year for half of the reporting stations.

Skies cleared overnight into the 24th and inland temperatures again fell close to –5C. Milder but still unsettled weather returned to end the month.

December

The first and last ten days of the month were mild and changeable with some heavy rain and strong winds at times. A wind gust of 78mph was registered at Weymouth on the 2nd. The temperature reached 14C quite widely on the 6th and peaked at 15C at Thornford.

The intervening period was much quieter, dry and cold with some night frosts. The 12th at –5.8C was the coldest night of the year at Dorchester. A similar reading on the 20th preceded the coldest day of the year for much of the county with maxima of just 1.6C at Blandford and 0.5C at Shaftesbury.

Overall 2007 was slightly cooler than 2006 (due largely to poor summer temperatures) but still in the six warmest of the last 100 years – all of them occurring since 1989.

THE WETTEST DAYS IN 2007

Rainfall totals exceeding 25mm at one or more stations were recorded on 25 days during the year compared to 26 days in 2006. The most widespread of these 'heavy rainfall' events, where more than half of the 40 reporting stations met the criteria, are detailed below.

13 May

At 0000hrs GMT a depression just to the SW of Britain was pushing its warm front and associated rainfall across the Channel. The rain reached Dorset before daybreak and continued through the morning, heavy at times and with some thunder. The rain cleared to sunny periods and heavy showers during the afternoon and evening.

Twenty-five stations registered more than 25mm of rain with the highest totals in the south. (Puddletown 34.2mm; Owermoigne 33.1mm; Winfrith UKAEA 33.0mm)

27 May

At 0000hrs GMT a depression (992mbs) was situated west of the Scilly Isles. During the day the low pressure system transferred east to the north coast of France and the wind backed into the north east and strengthened. Rainfall was heavy at times and it was cold with the temperature at 1400hrs only 10C compared to 25C just three days earlier.

Twenty-six stations recorded more than 25mm of rain and for eight of them it was the wettest day of the year. (Iwerne Minster 43.0mm; Swanage 40.7mm; Fontmell Magna 37.5mm; Portland 36.2mm)

RAINFALL IN DORSET 2007

Stations marked * record to an accuracy of 0.1mm and are used to compile county averages.
Rain-day totals in parentheses are generally reading low, as rainfall of less than 0.5mm and in some cases 1mm, at these stations are entered as a nil.

STATION	OBSERVER	GREATEST FALL IN 24 HOURS		Days with 0.2mm or more	Days with 25mm or more	DEPTH OF RAINFALL IN MILLIMETRES												TOTAL FOR YEAR
		Depth	Date			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
STOUR BASIN																		
Blandford Stt Mary (Chettell Way) *	Mr D. Vincent	32.8	13/8	176	9	95.6	112.5	77.0	3.6	116.2	122.3	124.4	95.4	39.5	44.2	126.1	108.5	1065.3
Blandford St Mary (Forebridge View) *	Mr A. Fleet	35.0	18/11	177	6	103.3	115.4	80.2	4.6	106.6	122.7	122.8	74.6	39.1	42.2	131.4	119.4	1062.3
East Stour *	Mr R. Brown	31.7	27/5	173	2	71.6	92.4	51.4	7.1	115.9	101.3	115.0	49.3	35.3	41.2	95.0	83.8	859.0
Fontmell Magna *	Mrs J. Westgate	37.5	27/3	178	6	88.4	103.4	80.8	7.3	13	24.7	29.4	59.1	44.1	126.8	122.4	117.7	807.4
Holwell (Vale View Farm)	Mr P. Henshaw	40.0	18/11	(106)	4	60.1	81.2	78.0	1.9	96.2	97.6	88.1	62.0	26.7	45.8	117.2	79.6	834.4
Iwerne Minster	Mr R. Benfield	43.0	27/5	164	7	91.1	116.7	85.5	5.2	125.4	139.1	140.4	71.1	36.9	36.3	135.7	89.3	1072.7
Marnhull (Old Mill Lane) *	Mr A. Bradbury	29.5	27/5	162	2	71.7	102.0	65.0	9.0	117.4	108.7	103.6	49.2	31.8	37.3	100.7	68.1	864.5
Motcombe	Mr M. Rawlins	34.0	27/5	181	3	94.5	114.0	63.0	9.5	143.0	143.0	135.0	51.5	34.0	49.0	103.0	104.5	1044.0
Shaftesbury (Hilltop) *	Mr M. Yorke	38.6	30/6	195	6	93.1	113.9	62.1	14.0	138.0	143.9	140.9	47.2	48.7	53.0	114.3	105.5	1074.6
Sturminster Newton (Rosecroft) *	Mrs R. Dawes	33.7	18/11	173	5	82.2	103.0	72.6	5.7	115.5	111.4	124.8	54.2	36.2	35.3	123.2	79.0	943.1
Turnworth (Home Farm)	Mr A. Yeatman	59.0	18/11;	153	9	120.0	145.0	89.0	3.0	129.5	135.5	155.5	95.5	42.0	46.0	171.5	103.5	1236.0
Wimborne (Merley) *	Mr B. Bush	33.7	18/11	154	6	113.4	113.2	61.6	3.6	117.2	88.9	131.8	54.9	36.1	40.3	127.0	97.8	985.8
Winterborne Zelstone	Miss B. Hoopppper	40.0	18/11	(133)	8	114.5	120.5	74.5	2.0	123.0	110.5	119.5	88.5	37.5	44.5	132.5	101.5	1069.0
Witchampton *	Mr A. Mitchell	45.0	18/11	149	7	85.7	110.1	76.6	4.0	111.1	126.8	139.3	82.8	42.0	38.2	121.0	93.8	1031.4
PARRETT BASIN																		
Melbury Sampford (Melbury House) *	Head Gardener	38.2	13/8	160	7	133.6	177.0	89.4	4.6	144.5	104.2	123.1	120.4	51.6	73.3	142.7	125.4	1289.8
Milborne Port	Mr E. Evans	29.0	24/6	152	3	55.5	109.2	58.2	0.0	101.9	102.4	129.0	62.3	35.0	41.0	67.1	77.7	839.3
Stalbridge *	Mrs M. Paul	30.3	27/5	166	4	70.2	102.3	56.0	3.5	120.9	111.2	126.5	50.8	32.5	42.6	117.2	83.5	917.2
Thornford	Mrs W. Morris	33.5	2/8	165	4	88.4	127.8	78.3	2.4	114.3	103.2	112.5	96.7	29.7	41.6	104.8	95.0	994.7

STATION	OBSERVER	GREATEST FALL IN 24 HOURS		Days with 0.2mm or more	Days with 25mm or more	DEPTH OF RAINFALL IN MILLIMETRES												TOTAL FOR YEAR
		Depth	Date			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
FROME BASIN																		
Ansty *	Mrs A. Stevens	48.0	18/11	180	6	97.6	129.3	79.7	3.1	120.1	112.5	118.6	86.9	39.4	40.3	167.3	101.2	1096.0
Bradford Peverell *	Mr D. Oliver	44.8	18/11	168	7	115.2	165.4	84.5	9.8	122.9	118.9	101.5	75.2	48.3	54.5	146.1	124.4	1166.7
Cerne Abbas *	Mrs M. Boxwell	40.4	13/8	180	6	128.3	155.0	92.2	5.3	129.3	124.2	142.8	95.9	48.7	57.6	147.2	134.0	1260.7
Charminster	Mrs P. Eveleigh	42.0	18/11;	154	6	125.9	163.5	85.9	8.7	128.9	125.3	106.9	82.6	46.2	63.1	142.9	124.6	1204.5
Dewlish (Parsonage Farm)	Mr C. Britton	52.0	18/11	(140)	8	109.0	137.0	71.0	7.0	122.0	94.0	119.0	84.0	47.0	70.0	148.0	132.0	1140.0
Dorchester *	Mr J. Oliver	38.8	18/11	170	6	110.3	150.2	79.3	9.8	129.4	109.4	118.9	78.2	44.3	54.6	150.1	115.1	1149.6
Milborne St Andrew (Coles Farm) *	Mr A. Maitland	54.2	18/11	167	7	114.1	132.0	85.1	3.9	119.9	100.7	108.0	92.0	35.2	50.2	161.0	115.7	1117.8
Milton Abbas	Mr K.. Battrick	49.0	18/11	160	8	112.5	130.0	89.0	4.0	126.5	106.5	113.0	97.5	35.0	53.0	150.5	111.5	1229.0
Owermoigne *	Mr A. Hodge	45.2	18/11	167	6	111.2	135.1	77.6	9.2	139.1	119.0	107.7	74.9	51.4	58.0	148.0	89.4	1120.6
Puddletown (Bardolf Manor) *	Mr H.G. Wood-Homer	46.6	18/11	163	7	100.6	142.9	78.8	5.5	125.7	113.8	109.2	87.1	39.4	53.5	164.2	107.0	1127.7
Rampisham *	Mrs C. Parry	35.7	13/8	173	9	121.1	177.3	102.5	6.7	127.0	104.3	102.0	96.4	43.7	71.9	138.3	122.6	1213.8
Stratton *	Mr W. Putnam	41.7	18/11	170	9	127.3	178.2	89.6	10.6	135.6	139.7	112.7	90.6	52.1	60.9	153.9	125.9	1277.1
Wareham (Trigon)	Mr G. Sturdy	36.1	19/11	150	1	96.4	85.5	43.6	2.2	73.2	84.2	88.0	52.4	39.7	32.4	122.2	73.2	783.0
Winfrith (UKAEA)	Mr B Ware	40.0	18/11	161	7	134.7	132.3	66.5	6.0	129.0	116.3	122.4	72.0	41.0	53.5	167.7	107.6	1149.0
Winfrith Newburgh	Mr M. Ching	35.0	Vs	(141)	9	148.5	140.0	80.5	7.0	72.0	132.0	128.5	86.5	40.5	69.5	173.5	114.0	1192.5
AXE BASIN																		
Forde Abbey *	Mr M. Roper	32.4	18/11	153	3	84.8	163.1	94.5	10.6	124.8	98.6	75.8	93.6	33.1	37.2	119.4	106.4	1041.9
COASTAL STREAMS																		
Bradpole	Mr G.R.. Smith	38.4	30/9	(119)	4	79.6	140.7	69.8	13.8	112.4	97.0	71.6	63.4	53.0	27.1	141.1	83.6	953.1
Osmington Mills (Coastguard House) *	Mr J. Hadwin	34.0	18/11	167	3	93.8	110.4	61.2	9.1	116.1	96.3	93.4	59.5	49.9	46.5	148.7	83.9	973.8
Portland Bill (Old Higher Light) *	Mrs F. Lockyer	36.2	27/5	149	1	47.0	98.0	44.8	5.0	105.9	96.7	60.4	45.0	33.8	17.0	82.6	49.0	685.2
Swanage *	Mr K. Moore	40..	27/5	152	1	77.1	124.4	51.5	1.4	111.0	91.6	97.2	59.9	27.9	42.3	100.8	82.2	867.3
Weymouth *	Mr R. Poots	31.1	18/11	151	3	87.2	135.2	56.9	12.0	113.5	103.7	84.1	44.6	42.5	30.8	130.5	92.1	933.1
Wyke Regis *	Mr R. Poots	26.1	30/6	153	4	71.2	1076	58.1	6.8	103.9	101.2	88.4	42.4	38.2	28.6	120.4	78.9	845.8
COUNTY AVERAGES				167		95.9	126.8	71.6	6.3	119.4	110.1	111.4	70.5	40.0	45.3	129.3	97.8	1024.4

Table 2: Monthly rainfall extremes

Month	Station	Wettest (mm)	Driest (mm)	Station
January	Winfrith Newburgh	148.5	47.0	Portland
February	Stratton	178.2	81.2	Holwell
March	Rampisham	102.5	43.6	Wareham
April	Shaftesbury	14.0	0.0	Milborne Port
May	Melbury Sampford	144.5	72.0	Winfrith Newburgh
June	Shaftesbury	143.9	84.2	Wareham
July	Turnworth	155.5	60.4	Portland
August	Melbury Sampford	120.4	42.4	Wyke Regis
September	Bradpole	53.0	26.7	Holwell
October	Melbury Sampford	73.3	17.0	Portland
November	Winfrith Newburgh	173.5	67.1	Milborne Port
December	Cerne Abbas	134.0	49.0	Portland

30 June

At 0000hrs GMT a low pressure system to the west of Ireland with its associated fronts was heading east towards Cornwall. The warm front approached Dorset during the morning and brought a period of steady moderate rain. The rain eased by mid-afternoon as Dorset lay in the warm sector but intensified again on arrival of the cold front. The wind became very gusty as it cleared through towards midnight.

Twenty-five stations reported more than 25mm of rain and for three of them it was the wettest day of the year. (Stratton 39.9mm; Shaftesbury 38.6mm; Charminster 37.2mm)

17–21 November

This five-day period was exceptionally wet over the whole of the county but especially for the central belt with totals approaching 150mm in places. (Turnworth 149.0mm; Ansty 143.0mm; Puddletown 135.8mm)

The lowest readings were recorded along parts of the coastal strip and in the extreme north. (Milborne Port 53.5mm; Portland 67.6mm; Swanage 71.3mm)

At 0000hrs GMT (18th) fronts associated with a depression (1000mbs) to the west of Scotland were making their presence felt. Over the next 24 hours the low slipped south-east to be centred over the south Midlands by midnight.

Heavy rain reached Dorset by 0400hrs GMT (18th) and continued throughout the day.

Thirty stations noted falls of rain greater than 25mm and for twenty-one it was the wettest day of the year. (Turnworth 59.0mm; Milborne St Andrew 54.2mm; Dewlish 52.0mm)

The 19th was a cloudy and showery day – many of the showers were heavy and thundery with hail and produced quite high totals in a short period of time.

Twenty-two stations recorded totals in excess of 25mm and at Wareham it was the wettest day of 2007. (Turnworth 44.0mm; Ansty 39.1mm; Iwerne Minster 37.6mm)

The low drifted away on the 20th only to be replaced by another developing feature moving up from the Bay of Biscay to be over the Bristol Channel by midnight. Rain had reached all of Dorset before 1200hrs GMT and was heaviest through the afternoon period across the south of the county. (Bradpole 33.8mm; Winfrith Newburgh 30.0mm; Dorchester 27.5mm)

The 21st dawned clear but cloud increased through the day with some heavy rain by evening. Thunder was heard in the Wimborne and Witchampton area. (Wimborne 33.6mm; Winfrith Newburgh 31.0mm; Forde Abbey 28.6mm)

THUNDERSTORMS

Thunder was reported as heard on 32 days across the county in 2007 equalling the 20-year average but well below the 42 days in 2006.

The poor summer of 2007 with no heatwaves and with winds generally of Atlantic origin, resulted in short-lived thunder showers and a total absence of severe long lasting heat generated storms.

The monthly distribution of thunder days forms a part of Table 1.

Twenty-two observers provided details of thunder activity in their locality but there were only three days when it was widespread enough for at least ten stations to report it.

22 June (10 stations)

A generally cloudy morning in a cool SW airflow with temperatures near 19C. Sunny periods developed during the afternoon and this generated showers that turned thundery in the north of the county.

3 July (17 stations)

The morning was generally dry with sunny periods in a cool westerly airflow with temperatures near 18C. Heavy thundery showers developed during the afternoon.

19 November (12 stations)

A showery day with thunder heard in the north of the county around the middle of the day and towards the coast in the early evening.

MARINE REVIEW 2007

Lin Baldock
24 Martel Close, Broadmayne, Dorchester DT2 8PL

The year 2007 got off to a bad start for Dorset marine life with the wreck near Branscombe in Devon of the M/V MSC *Napoli* – a 62,000 ton vessel with 2,394 containers on board. The saga started with the vessel beginning to break up in mountainous seas 50 miles south of the Lizard Point in Cornwall on 18 January 2007. The crew abandoned ship

and attempts were made by the French and British authorities to tow the stricken vessel to the safety of Portland Harbour, the nearest suitable port. However, because of continuing poor weather conditions and the fear that the vessel would indeed break up, the controversial decision was made to beach the vessel on the Devon coast of Lyme Bay just west of the village of Branscombe, part of the Jurassic Coast World Heritage site. As luck would have it, no severe south-easterly gales were experienced during the rest of 2007 and the vessel remained essentially intact.

The vessel's cargo included 160 tons of nickel which would have been valued at over $5,500,000 the day before the disaster, representing as it did nearly 20% of the total amount of nickel held in London Metal Exchange Warehouse. Of the containers 103 were reported lost overboard and we all saw the aftermath of the pillage of 56 of those containers that washed up on the beach at Branscombe. Forty-seven containers were unaccounted for and were presumed sunk. As of September 2007 nine containers, known not to be hazardous have still not been traced.

Thankfully relatively little oil was spilled during the rescue. Some 200 tons were lost, resulting in a five-mile-long slick from the wreck but a further 3,500 tons of heavy fuel were successfully removed at the rate of 30 tons an hour. Vast amounts of rubbish from the wreck were washed up on Devon and Dorset beaches; some places such as Chesil Cove and Chapman's Pool, well known for being sites that accumulate rubbish held vast quantities. Four months later, in May, Chapman's Pool was closed to the public when large quantities of medical supplies were discovered on the beach presumably released from a lost container that had finally broken up. The most visible items on the beaches were drifts of shampoo bottles (Blond Expressions featured heavily), hair conditioner, the bright yellow shells of Kinder eggs and plastic parts for BMW and VW motorcycles and cars. On a visit to Brittany in May 2007 I found BMW and VW vehicle parts and Kinder egg toys on the beaches there – these were likely to have come from the MSC *Napoli* cargo. This material is still appearing on beaches such as Chesil Cove, Kimmeridge and Chapman's Pool when I was last there at the beginning of December, nearly a year after the disaster. Participants in the Beach Clean at Kimmeridge at the beginning of December were greeted by the sight of white drifts of nurdles (the basic material for the manufacture of plastic products) thought to have come from one of the *Napoli*'s lost containers. It is impossible to collect these plastic discs effectively, as they are not more than 5mm in diameter, and they continue to pose a threat to marine wildlife.

British Divers Marine Wildlife Rescue and the RSPCA co-ordinated the rescue and treatment of over 1,900 live oiled seabirds, predominantly guillemots (*Uria aalge*) and razorbills (*Alca torda*) from Chesil Beach and Portland. Birds that were not too heavily oiled were taken to West Hatch in Somerset to be cleaned, allowed to recover and then released. Numbers of affected birds were likely to have been much higher given the prevailing N and NE winds, which probably resulted in many birds not appearing on our shores. The oiled guillemots included a bird from Skomer ringed in 1987, one from Fair Isle and three from Wexford in the south-east corner of Ireland. Information provided by staff at Durlston Country Park estimated, given the number of oiled birds recovered, that some 2,000 to 2,500 birds were actually affected. Lyme Bay has been estimated to hold about 20,000 over-wintering guillemots, though only about 1,600 breed in the colonies at Berry Head, Portland and along the Purbeck coast. Hence the oiled birds represented about 20% of the population likely to have been resident in Lyme Bay at the time.

Water quality parameters, notably highly toxic polycylic aromatic hydrocarbons, were monitored by a consortium of organisations following the wreck. Samples from the initial surface oil slick showed massive levels of these chemicals (57,000ngl^{-1}). However, subsequent measurements of sub-surface water samples and those taken from other sites around Lyme Bay reported values in the range <6ngl^{-1} to 31ngl^{-1}, levels generally accepted to be typical of unpolluted environments (Readman *et al.* 2007).

In August the decision was taken to tow the bow section of the MSC *Napoli* to the Harland and Wolff yard in Belfast for recycling, leaving the stern accommodation block still beached in Lyme Bay. This was again a controversial decision, given the hazardous nature of the voyage, and there was additional concern over the likely transfer of the alien slipper limpet *Crepidula fornicata* to Belfast Lough where it has only very recently been recorded for the first time. *C. fornicata* is abundant in Lyme Bay.

The destruction of the Lyme Bay reefs by scallop dredging continues while politicians prevaricate and promote the establishment of minute voluntary protected zones around the reefs. The minister came up with bland statements which bring no protection: 'We are acting to protect these pink sea fans, ross corals and sunset corals, and to also protect other parts of Lyme Bay's important marine environment ... An agreement has been reached which provides the necessary protection on a voluntary basis. We will be consulting with Sea Fisheries Committees to consider how this can be backed up by legislation.' (Defra press release). I would strongly argue that the voluntary agreement does not provide any protection and we are still waiting for any meaningful legislation to be enforced. With the omission of the long-promised Marine Bill from the Queen's Speech in November, there seems to be no glimmer of hope in the near future for any strengthening of the presently feeble legislation to protect our marine environment.

Marine Conservation Society volunteer, Steve Trewhella, organised another survey of stranded seafans (*Eunicella verrucosa*) along a 600m stretch of Chesil Beach at Wyke Regis, assisted by 17 other volunteers and with the co-operation of the Royal Engineers who ferried the participants across. A total of 508 dead seafans were collected over a three-hour period, equating to nearly one fan per metre length of beach. This survey was a repeat of monitoring that had been carried out in 2005/6, when a total of over 800 fans had been collected over two visits. Clearly the protection implemented in Lyme Bay for the seafan continues to be ineffective. Furthermore, large, recently detached colonies can be picked up on virtually any visit to Chesil Cove.

The extent of the impacts of the wreck of the MSC *Napoli* and their ramifications brought home to me the connectivity of the marine environment: the wide dissemination of the lost cargo, the broad geographical range of the oiled seabirds over-wintering in Lyme Bay. The relatively very low value of much of the cargo items was also

striking; it appears that the Kinder egg toys destined to litter Dorset beaches for years to come were manufactured in north-west Turkey and were on their way to South Africa via Antwerp, where the MSC *Napoli* started her last ill-fated voyage. How long would these Kinder toys have held the interest of the recipient child on Easter Day 2007? Not long I think!

The proposal to provide gas storage in caverns under Portland required an impact assessment to be carried out on the marine habitats present at the landfalls for the gas pipeline which crosses Weymouth Bay. Dr Ken Collins, based at the Ocean and Earth Science Department at Southampton University, surveyed the northern landfall near Redcliff Point on behalf of RPS. Areas of seagrass (*Zostera marina*) were identified here in water depths of up to 10m and, as a consequence, directional drilling beneath the seabed out to this depth has been agreed in order to minimise the impact on this important habitat and the Heritage Coast.

Monitoring of sediment movements in Poole Bay have been continued by Dr Ken Collins since the major maintenance dredging project of the winter of 2006/7. Work carried out during 2007 indicated that accumulated silt in Poole Bay was gradually being remobilised. Divers reported heavy siltation of some of the patch reefs in the Bay and significant accumulations of fine sediment around them.

Marine Species Records

Caryophyllia inornata Duncan, 1878 and *Hoplangia durotrix* Gosse, 1859. Further reports of these two nationally rare hard corals (Sanderson 1996) have been received from the patch reefs in Poole Bay during 2007.

The alien anemone *Haliplanella lineata* (Verrill, 1869) was recorded in very shallow sites in the western end of the Fleet Lagoon and in the Abbotsbury Embayment growing attached to shells, and the green alga *Ulva. H. lineata* is an introduced species thought to originate in the western Pacific. It was first recorded on the east coast of the United States in 1892 and the first European record was from Millbay Docks, Plymouth, in 1896. It has since been reported from many locations around the UK and throughout Europe. The anemone is found in sheltered sites and is tolerant of fluctuations in temperature and salinity (Stephenson 1935). Population numbers seem to vary widely and it may disappear from a site only to recur again at a later date. This appears to be the first record for the Fleet.

The lagoon anemone *Nematosella vectensis* (Stephenson 1935) was found in good numbers in shallow sites in the western Fleet Lagoon during a survey in October 2007 for Natural England. This species is protected under Schedule 5 of the Wildlife and Countryside Act, 1981.

Anilocra frontalis H. Milne-Edwards, 1840: parasitic isopod. This species has been noted on corkwing wrasse (*Crenilabrus melops*) at Kimmeridge in both 2007 and in 2006 (Julie Hatcher, pers. comm.). It is frequently seen on wrasse in shallow habitats in the Channel Islands but is not commonly recorded on the English coast.

An interesting report of the anemone prawn *Periclimenes sagittifer* (Norman, 1861) from Swanage Pier was given to me by Polly Whyte and Matt Doggett. They photographed a single individual in a snakelocks anemone (*Anemonia viridis*) under the pier on 21 September 2007. This prawn is an obligate commensal of anemones (Smaldon *et al.* 1993) and was originally described from Jersey. It is distributed along the Atlantic coast of Europe from the Channel Islands and Normandy south to Portugal and into the Mediterranean. There are no previous records from the north side of the English Channel.

Aepopsis robinii (Laboulbene): this unusual beetle was reported by Steve Trewhella from a site at Kimmeridge where it occurs intertidally in rock crevices.

Studies of Dorset populations of the toothed topshell *Osilinus lineatus* (da Costa) have continued (Hawthorne and Wiffen 2007). These authors showed a significant increase in numbers of this species at sites east of Portland Bill and have proved the establishment of a breeding population in Portland Harbour. This species has been selected as a climate change indicator (Meiszkowska *et al.* 2005) so careful monitoring of populations at range limits is of particular interest. Visits to Broad Bench, Charnel and Brandy Bay at Kimmeridge in August 2007 produced counts of over 20 *O. lineatus* at each site (Steve Trewhella and Lin Baldock, pers. obs.).

The large log that provided so many specimens of the Columbus crab (*Planes minutus*) in October 2006 was rescued from the beach at Chesil Cove in April 2007 and collected for study by Tom Clifton, an expert on ship worms (Teredinidae). The log was meticulously dissected and nearly 1,000 shipworm shells were retrieved. Most of the specimens were *Teredora malleolus* (Turton, 1882) a widely distributed tropical species occasionally found in driftwood around the British Isles. However, lower numbers of five other species, some new records for the British Isles, were found and it is hoped to publish the results in due course.

Dr D. Herdson of the National Marine Aquarium passed on reports of several large specimens of the seahare *Aplysia fasciata* Poiret 1789 from Poole Bay. This is the largest species of *Aplysia* recorded from the British Isles and the individual sent to the Aquarium weighed 1.5kg. This is a southern species that had first been recorded from Salcombe in 1949 (Marine Biological Association 1957) and then scattered records from then until October 1990 from the Helford River, Cornwall and Plymouth, Devon (Bebbington and Turk 1991). This year (2007) there were several records ranging from Cornwall to Dorset between August and the middle of December.

Reports of both species of seahorse (*Hippocampus guttulatus* and *H. hippocampus* (Linnaeus, 1758)) continued to come in during 2007 with frequent reports from a site in about 15m of water immediately offshore of Branksome in Poole Bay (Steve Trewhella, pers. comm.).

Symphodus (Crenilabrus) bailloni Valenciennes, 1839: Baillon's or Scaly-cheeked Wrasse. Anglers are now reporting catches of this species from marks in Poole Bay and divers photographed males building and defending nest sites on the Poole Bay Artificial Reef. Small individuals (100mm in length) were reported regularly from the patch reefs within the bay in water depths of 8–16m.

Entelurus aequoreus (Linnaeus, 1758): snake pipefish. A total of 76 individuals were collected at Studland in April (Steve Trewhella, pers comm.). This species has shown a dramatic increase in abundance in recent years, juveniles appearing in the Continuous Plankton Recorder maintained by the Marine Biological Association and adults in

large numbers in the North Sea (Kirby and Harris 2007). This pipefish has appeared more commonly in the diet of many juvenile seabirds, for which it is unsuitable since it is too long and bony. Chicks may choke to death on them.

Mola mola (Linnaeus, 1758): sunfish. There was only a single sighting of this species reported to the Durlston Country Park Marine Sightings Scheme (12 July 2007). There were no records of basking shark (*Cetorhinus maximus*) in Dorset waters on this database for 2007.

Marine Mammals

Records of marine mammal sightings in Dorset waters continue to be kept at Durlston Country Park near Swanage. A diary of these sightings is now available on line at http://www.durlston.co.uk

- Bottlenose Dolphin (*Tursiops truncatus*) 56 records spread throughout the year with a pod of 30 animals reported off Chesil Beach in April 2007.
- Common Dolphin (*Delphinus delphis*) a large group of 30–40 individuals was reported off Portland Bill at the end of April. Two dead males of this species were washed ashore in Chesil Cove at the end of January, probably victims of pair trawling for bass (*Dicentrarchus labrax*) in the Western Approaches of the Channel.
- Harbour Porpoises (*Phocoena phocoena*) were reported on three occasions off Portland Bill.

A solitary grey seal (*Halichoerus grypus*) was reported in April off Canford Cliffs and again off Ringstead Beach in December. There were three reported sightings of a common seal (*Phoca vitulina*): in Durlston Bay in January, off Dancing Ledge in April and Church Ope Cove in May.

BIBLIOGRAPHY

Bebbington, A. and Turk, S.M., 1991 '*Aplysia depilans* Gmelin and *A. fasciata* Poiret from Cornwall', *Journal of Conchology* **34**, 115.

Hawthorne, J.B. and Wiffen, L.J., 2007 'The distribution of *Osilinus lineatus* (*Monodonta lineata*) (Da Costa) at its eastern English Channel limit in 2004', *Journal of Conchology* **39**, 403–9.

Kirby, R.R. and Harris, M.P., 2007 'Chicks choke to death on snake pipefish', *JMBA Global Marine Environment* **5**, 12.

Marine Biological Association 1957. *The Plymouth Marine Fauna. Being notes on the local distribution of species occurring in the neighbourhood of Plymouth, including some other records of species found on the south coasts of Devon and Cornwall and the adjacent offshore waters of the English Channel.* On-line version http://www.mba.ac.uk/PMF/.

Meiszkowska, N., Leaper, R., Moore, P., Kendall, M.A., Borrows, M.T., Lear, D., Poloczanska, E., Hiscock, K., Moschella, P.S., Thompson, R.C., Herbert, R.J., Laffoley, D., Baxter, J., Southward, A.J. and Hawkins, S.J., 2005 'Marine biodiversity and climate change. Assessing and predicting the influence of climate change using intertidal rocky shore biota. Final Report for United Kingdom funders', *Marine Biological Association Occasional Publication* **20**, 55.

Readman, J.W., Guitart, C., Frickers, T. and Law, R.J., 2007 'An assessment of the chemical pollution from the MSC *Napoli*', *Marine Pollution Bulletin* **54**, 501–3.

Sanderson, W., 1996 'Rarity of marine benthic species in Great Britain: development and application of assessment criteria'. *Aquatic Conservation* **6**, 245–56.

Smaldon, G., Holthuis, L.B. and Fransen, C.H.J.M., 1993 'Coastal shrimps and prawns', in R.S.K. Barnes and J.H. Crothers (eds), *Synopses of the British Fauna (New Series)* No. **15** (Second Edition), 142.

Stephenson, T.A., 1935 *The British Sea Anemones. Volume II* The Ray Society, London.

BUTTERFLY REPORT 2007

Bill Shreeves

The butterfly walking year got off to a literally 'flying start' with an unprecedented period of warm weather. The weather station at Fontmell Magna has 27 years of temperature and rainfall and 13 years of sunshine data. We have been using it as part of our endeavours to explain trends in butterfly numbers in north Dorset. The data indicate a March which, although slightly wetter than usual, was 0.6° mean centigrade above average warmer and 1.8 hours sunnier. April was even more astounding. The mean temperature was 2.8° above and rainfall was 65.5mm below the 27-year average and the sunshine was 2.2 hours over the 13-year average. The result was an April and first part of May in which many species were flying much earlier than normal. A visit to Durdle Door in sunny but blustery weather on 3 May was typical of how the year began. Once my wife and I had walked over the top of the hill and down on to the more sheltered cliff path, we encountered the surreal spectacle of Lulworth Skippers (normal flight period from July) flying alongside Dingy Skippers and accompanied by smaller numbers of Adonis, Small and Common Blues. Many walkers going about their business in this period suffered from a sense of time dislocation. The calendar said early May but the butterfly clock registered late June or even July. For my own part these early experiences gave the whole year a sort of golden glow, which remained despite what was to follow. Many pessimists observed that we should enjoy the April weather while it lasted, because it would probably prove to be the only summer we would get! This did indeed turn out to be the case, with May, July, August and September all colder and less sunny than average on the Fontmell Magna weather scale. Even June, which was actually warmer, was also wetter and less sunny than average. July, which had been so famously warm, sunny and dry in 2006, plunged to a desperate 2.2° mean centigrade below average and 65.2mm wetter. So what sort of a butterfly season emerged from all this extreme weather?

As usual our industrious team of Dorset recorders and data inputters have toiled to provide the information that makes it possible to give a reasonably objective answer to the invariable question of how well the butterflies did. A record number of 62 Butterfly Transect walks were completed in 2007. A walk at Leeson House Field Study Centre was registered for the first time. Duncliffe and Powerstock North should have been celebrating their 21st birthdays, which have unfortunately already been allowed to pass unnoticed at Fontmell, Sovell, Stubhampton, Ballard, Studland, Tadnoll, and West Moors! Unfortunately no 2007 data was received for Hams Common, Holton Lee, Iford Landfill or Higher Hyde. Sadly, travellers effectively prevented any walks from taking place at Hethfelton Wood. The steady Regional Action Plan programme of visiting the sites of Dorset's priority species carried on but was severely handicapped by the poor late summer weather. This means that, with only 2008 and 2009 left before the next Atlas, a large number of colonies still await an appropriate survey in good weather. Our new Garden Record Co-ordinators, Adrian and Alison Neil, have had returns from 61 recorders representing 54 kilometre squares and recording 29 butterfly species. The 'best' garden boasted 23 species and some Dorset garden recorders were fortunate to entertain Lulworth and Essex Skipper, Purple Hairstreak, Silver

Washed Fritillary, Wall and Grayling in 2007. The idea of butterfly survey days targeted at villages in areas with 'white holes' where butterflies appear to be absent, was continued in 2007 with Mosterton. The nine kilometre squares around the village were notorious for yielding only one butterfly record (a Large White) for the 2000–2004 Atlas. A check into all the Dorset atlases going right back to 1970–84 revealed that 2 of the 9 squares had never recorded a butterfly and that in that 30 years no Skippers of any species, Holly Blues, Red Admirals, Small Tortoiseshells or Commas had ever been reported. Most of this was remedied on Sunday 22 July, when a day of walking around the local footpaths yielded a count of 681 butterflies from 16 species. Best news of all was that 7 people living in the Mosterton area have volunteered to do regular recording so that it won't revert to being a 'white hole.' Meanwhile efforts have continued to train more recorders and surveyors. An indoor workshop on 31 March at Ferndown was attended by 23 volunteers and was followed up by an outdoor field day at Compton Down under the discreet surveillance of a BBC Natural History camera unit making a programme on the part played by amateurs in collecting natural history data. Another training day, arranged by the Purbeck Keystone Project, financed by the Heritage Lottery Fund, and run by Dorset Butterfly Conservation, was held at Church Knowle. The course attracted 24 volunteers and 18 of them went on to participate in 6 mini transect walks arranged along the Purbeck Ridge, which provided useful data and will be continued in order to assess the effectiveness of more conservation-friendly management. The year closed on 10 November when Milton Abbey school hosted a Computer Workshop attended by 28 volunteers learning how to input transect walk data or to upgrade their skills for the new 2.5 version. All of this effort meant that not only was there plenty of data for 2007 but also good foundations were laid for the last two years of collecting for the 2005–09 Atlas.

The 2006 Dorset report claimed that it had been a good year for butterflies. However, since that was written the United Kingdom Butterfly Monitoring Scheme Annual Report for 2006 has been released. Based on over 660 transect sites all over the UK, it argued that it was in fact only an average year which ranked 15th out of 31 years of recording. This ranking was produced by summing the counts of the most common 33 species over the years 1976 to 2006. Given that 2006 was one of the hottest summers on record, this suggests that 2007 might come near the bottom of the order. Because of the statistical difficulties of handling an ever-changing annual number of walks, our Dorset report has traditionally used a different method. The theory is that in the best butterfly years a high proportion of the butterfly species should have an over 50% improvement both on the previous year and on the site species averages since the walk began. Using this criterion 2007 does indeed prove to be one of the worst years in Dorset. Only 2 species (Holly Blue and Peacock) were either over 50% up on both of the averages or one of them, for over 50% of the sites. This should be compared with 15 species in 2006. Conversely in 2007 no fewer than 24 species were over 50% down on both or one type of average on over 50% of sites, compared with just 5 in 2006. These 'losers' included many of 2006's 'winners' (White Admiral, Silver Washed Fritillary, Small Blue, Comma, Adonis Blue, Small Copper, Lulworth and Large Skippers). Other 'losers' in 2006 (Small Tortoiseshell, Chalkhill Blue, Grizzled Skipper and Grayling) came in as under-achievers for a second year. New losers included both double brooded species (Brown Argus and Common Blue) and single brooders (Green Hairstreak, Small and Grizzled Skippers and Silver Studded Blue). Final confirmation of the poverty of 2007 comes from the Site assessment records. These are based on the percentage of a site's regular species (those with an annual average count of over 1 since walks began), which were below their annual averages. In 2006 the **average** of the best 5 sites was 32% of species below their annual average count. In 2007 it was 50%. Conversely, for the worst 5 sites the 2006 average was 87% species below and the 2007 average was 94%. Given that in a poor summer egg laying is usually adversely influenced, the prospects for 2008, if there is not a big improvement in at least some of the summer months, must be poor.

Migrants

Table 1 shows that 2007 was also not a good year for Dorset's regular migrants. It was only the second year since 1996 when the numbers of Clouded Yellows exceeded those of the Painted Lady. Of course the walk data in Table 1 do not include very early or late records. Red Admirals were seen in every month of the year in 2007 and it is probable that the earliest records may come from both over-wintering adults and caterpillars. Clouded Yellows were reported in March and April, some of them during periods of northerly winds, which might suggest that the Bournemouth under-cliffs are not the only sites where caterpillars are managing to eat their way through the winter. There were a few Painted Ladies in February from the Poole and Bournemouth area and others in March. The winter of 2006–7 was largely warmer and wetter than average, which might have aided survival, but we still lack any detailed evidence comparable with the research done by Michael Skelton on the Boscombe/Bournemouth undercliffs for the Clouded Yellow. The poor summer meant, of course, that there was little chance of the numbers building up in the usual way from further broods. Durlston East had the highest total Painted Lady count of 23, Durlston West topped the Clouded Yellow league table with 61 and Stubhampton Bottom, which in 2006 had finished 10th, 2 places below Melbury Down and Wood, in the 'UK top' 10, led in Red Admirals with 151. I am not aware of any Dorset Monarch sightings for 2007.

Table 1: Migrants on Dorset walks

Years	Clouded Yellow	Painted Lady	Red Admiral	Monarch*
1996	734	**18,311**	**6,691**	3
1997	*4*	*57*	1,086	1
1998	164	277	1,381	1
1999	21	197	1,545	13
2000	**1,035**	798	1,562	4
2001	13	229	1,105	**14**
2002	252	588	986	2
2003	363	3,123	4,062	1
2004	192	261	*453*	*0*
2005	102	118	1,835	2
2006	802	805	1,747	4
2007	234	207	1,319	*0*

note: on all tables
Bold = Best year *Italics* = worst *Cas. Recs.

Table 2: Dorset rare migrant records 2007

Date	Recorder	Locality	Grid	Comments
Large Tortoiseshell				
28.1	Port. Bird Obs. Web	PBO Top Field	SY 679/686	Ragged, captured, brought to PBO 4.2
3.3	PBO Web	Obs garden	SY 679/686	On wing. AM. Seen for a few mins
6.4	PBO Web	Portland Bill	SY 676/682	Possible – seen in flight only
17.4	David Leadbetter	Ballard Down	SZ 026/810	In flight
7.7	Portland Bird Obs.	Nicodemus Knob	SY 697/732	Seen pm
7.7	Revd Edward Pratt	N of W entrance to Arne Moors	SY 948/866	11.15am very worn; confirmed by large group of ents and botanists
7.7	Alan Jefferies	Church Knowle	SY 941/849	On path, photographed up telegraph pole
8.7	Owen Figgis	Tout Quarry	SY 686/726	Photographed on buddleia, half-an-hour pm
10.7	PBO Web	Southwell garden	SY 68/70	am 1 hour
11.7	PBO Web	Cheyne	SY 691/702	On buddleias
14.7	PBO Web	Wakeham near Mermaid pub	SY 694/714?	In flight, same as 11.7?
14.7	National Trust Warden	Brownsea Castle	SZ 027/874	In flight pm
18.7	Michael Skelton	Wharncliffe Rd, Boscombe	SZ 109/915	Feeding on white buddleia
18.7	PBO Web	Between Portland Heights Hotel and Kingbarrow Quarry	SY 689/728?	Late morning
19.7	PBO Web	Obs garden	SY 679/686	Late morning, on and off for +1 hour
20.7	PBO Web	Obs garden	SY 679/686	Brief am sighting – same as 19.7?
22.7	PBO Web	Southwell garden	SY 68/70	Evening – same ind. as 10.7?
5.8	Brenda Harmer	Flower's Barrow	SY 865/804?	In flight from west – id. not certain
Camberwell Beauty				
6.4	PBO Web	Obs garden	SY 679/686	Mid-day on and off until 4.00 pm
Long-tailed Blue				
14.10	Andy Gibson	Highcliffe	SZ 208/945	Inside house

However, as Table 2 shows, 2007 could be hailed as Dorset's year of the Large Tortoiseshell. The five sightings and kilometre squares of 2006 grew to a possible 14 in 12 kilometre squares during 2007. Whereas the sightings in 2006 were all in April and May, those in 2007 were observed in January to April (hibernation and post hibernation?) and the majority in July and early August (summer brood?). Most of the sightings in 2004 (Brownsea Island) to 2007 took place along the coast from Portland via Purbeck and Poole Harbour to the Boscombe area. The only exception was the 2006 record for Langdon Hill in West Dorset. Whether we are seeing the outcome of released breeding stock or migration from the Continent or the Isle of Wight, where there have been rumours of colonies, it is not possible to say. Peter Davey's weather back tracks for the July 2007 sightings show mobile westerly winds, which make continental origins very doubtful. Unlike the quartet of Camberwell Beauties seen in 2006, all of which were reported in August to October, the only one recorded for Dorset in 2007 occurred in April in that Mecca for wandering butterflies, the Observatory garden in Portland. The discovery of a Long-Tailed Blue inside a house in Highcliffe in October suggests a possible leguminous origin. Previous records in Dorset were in November 2005 and two in August 2003.

High and Medium Priority Species

This report only deals with species where there have been significant new trends and/or records since 2006.

Thymelicus action (**LULWORTH SKIPPER**): In quantitative terms this was a poor year with 83% of its walk sites recording over 50% declines on their annual averages.

However, Table 3 shows that there was a revolutionary change in the species' flight period. Over 17 years of Transect walk recording at Durlston East, the earliest week in which Lulworth Skippers first appeared was week 13 (24–30 June), not far off the average week 14.

Yet in 2007 the species emerged no less than 2 weeks earlier in week 10 (3–9 June). In fact, in more sheltered spots on Purbeck not covered by official transects, Lulworth Skippers had been seen in the last week of April. Later, as the weather worsened, there was much speculation as to whether the flight period length would be curtailed. It turned out that the species continued flying until week 24, giving it a massive 14 weeks of flight, far in excess of the 10 which was the highest previous number and 8 which had been the average. It can be seen from Table 3 that the data for the nearby Durlston West was broadly similar. Despite the sudden weather peculiarity, the species seems to have converted easily into the several brood format followed on the Continent.

Leptidea sinapis (**WOOD WHITE**): So far the Powerstock Wood Whites, originally introduced artificially to the site, have remained stable. They now fly over most of the area as shown by data from the Rest of the Powerstock walks in Table 4. Unfortunately the numbers found on the adjoining Kingcombe Walks are now falling, probably because of the growth of denser privately owned woodland on the old railway track, which separates the two areas. Dorset's only other remaining colony to the west of Lyme Regis on the under-cliff, which is surveyed via the Regional Action Plan, also seems to be holding its own. Occasional singletons have been spotted in the past on the National Trust

Table 3: Lulworth Skipper flight periods

Flight Details	**Durlston East**		**Durlston West**	
TW Week Numbers/Weeks flight periods	**1989–2006**	**2007**	**1989–2006**	**2007**
Earliest week number recorded	13	[10]	11	[10]
Earliest average week number.	14		14	
Latest week nummmmmmmber.	24	[24]	24	[24]
Latest week number average.	22		23	
Longest number of weeks flight period	10		11	
Shortest number of weeks flight period	5		8	
Average number of weeks flight period	8	[14]	9	[14]

Notes: Transect Walk Week Numbers
June 3 to June 9 = 10
July 1 to July 7 = 14
August 26 to September 1 = 22
September 9 to 15 = 24

Table 4: Wood White annual averages

	1985–89	**1990–94**	**1995–99**	**2000–04**	**2005–07**
Powerstock North	**28**	*12*	*12*	18	26
Rest of Powerstock		*19*	49	**53**	40
Total		*31*	61	**71**	66
Kingcombe		**2**	1	0.4	*0.3*

Table 5: Small Blue on Dorset walks

Years	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
No. of sites	5	7	6	9	6	8	9	10	8	12	**15**	13	**15**	14
Total count	113	196	*41*	96	147	280	299	234	192	228	503	373	**504**	231

reserve to the east of Lyme Regis and this year came a report of one visiting a garden on the very early date of 12 April, inland to the west of Lyme Regis (David Cox SY 337925).

Strymonidia w-album (**WHITE-LETTER HAIR-STREAK**): The comments in last year's report on this elusive species in Dorset do not seem to have inspired anyone to track down the exact location of the colonies from which the single butterflies must have come. However Nick Butt has located another possible colony near Tarrant Crawford (19.7; ST 928032).

Cupido minimus (**SMALL BLUE**): Another year of poor May and June weather finally terminated the amazing boom in Small Blue numbers (Table 5). Even so the number of sites managing to continue recording at least one, still held up and the count at Cerne Giant increased. Two locations along the Purbeck coast, which had not been recorded since the 1995–99 Atlas, between Dancing Ledge (SY 994 769, Barbara Bruce) and Blackers Hole (SZ 002 770, Peter Davey) were found to have retained small colonies.

Plebejus argus (**SILVER-STUDDED BLUE**): There was an alarming crash in totals of this species to the lowest level on walks since 2000 (Table 6). This was true of both the Portland and the Heathland sites. The fall in Portland was more extreme than on the heaths. The culprit was probably the wet and cold summer weather operating presumably via caterpillars and their protective ants.

Lysandra coridon (**CHALKHILL BLUE**) and *Lysandra bellargus* (**ADONIS BLUE**): The poor summer cut back the previous improvement in the single-brooded Chalkhill Blue as effectively as it did for the more successful double-brooded Adonis Blue. Changing fortunes since 1990–99 made the Adonis Blue the dominant species and the role reversal persists (Table 7). This is most obvious on the North Dorset Downs and is becoming alarming in Purbeck. The new mini transect walks that were set up this year on the Purbeck chalk ridge give us a splendid data range stretching from Grange Arch eastwards to Ballard Down. While most of the new walks recorded Adonis Blue, not a single Chalkhill Blue was counted and only one on the long established Ballard Down Transect.

Ladoga camilla (**WHITE ADMIRAL**): The poor May to July weather dashed fond hopes that the great White Admiral year of 2006 would restore gliding White Admirals in woods and gardens as a regular annual spectacle. As can be seen from Table 8 numbers crashed back to their more normal count. The dreadful July weather prob-

Table 6: Silver-Studded Blue on Dorset walks

Years	No.*	Nos on Portland walks	Nos on Heathland walks	Totals**
2000	**11**	85	597	682
2001	**11**	94	**788**	**882**
2002	9	45	539	584
2003	9	98	337	435
2004	*8*	109	343	452
2005	9	**291**	393	684
2006	9	244	349	593
2007	*8*	*33*	*219*	*252*

* No. of sites with at least 1 counted
** Totals counted on all sites

Table 7: Chalkhill and Adonis Blue on Dorset walks*

Years	1990–94	1995–99	2000–04	2005	2006	2007
Chalkhill Blue	2,103	**4,617**	676	1,153	1,353	*556*
Adonis Blue	*680*	1,759	4,470	4,356	**5,605**	1,987

* = Annual average or totals from Badbury, Cashmoor, Sovell, Stubhampton, Fontmell, Hod, Clubmens, Melbury, Cerne, Ballard, Durlston West, Tout and Broadcroft.

Table 8: White Admiral on Dorset walks*

Years	No.*	Total**
2000	10	31
2001	*6*	19
2002	*6*	*14*
2003	**11**	37
2004	*6*	30
2005	8	37
2006	8	**151**
2007	8	39

* No. of sites with at least 1 record
** Totals counted on all walks

ably confined those White Admirals that did make it through the larval stage to the canopies. Alner's Gorse was the only site where the transect count reached double figures (17 compared to 48 in 2006).

Apatura iris (**PURPLE EMPEROR**): Although Roger Smith's group continued their attempt to locate Dorset's missing Purple Emperors, the weather made this elusive species hard to find even in counties where their colonies are well known. So the Purple Emperor in Dorset remains 'lost' but possibly extinct. The research group will continue in 2008.

Boloria selene (**SMALL PEARL-BORDERED FRITILLARY**): This year the already bad situation described in 2006 got even worse. Of the three surviving clusters of sites, Stonebarrow's transect walk count fell from a reasonably healthy 21 in 2006 to 4. Efforts by the National Trust to prevent the promising colony adjoining the Studland Golf course from being obliterated by gorse and scrub, via some selective winter burning, were upset when the fire got out of control. No butterflies were seen on the site. However, 3 or 4 were observed at a nearby location on scrubby grassland so there is still hope. The species was seen again at the Bindon Hill end of the Army Ranges in small numbers.

Euphydryas aurinia (**MARSH FRITILLARY**): At first glance Table 9 appears to show a complete success story. The total count on the 11 Transect Walks, which have been running continuously since 1995, was the biggest ever. Hod Hill (938) and Cerne Giant (719) had record counts. Newer walks at Southfield Hog Cliff (213) and Lankham Bottom (94), not shown in Table 9, had impressive totals. Completely new sites near Piddlehinton and The Cliff in Cranborne Chase were discovered. However, there are two big reservations to be made. First, the success is almost totally confined to the Chalk Down sites. The transect walk counts on the non-calcicolous 'genuine marsh' colonies are the lowest ever. Indeed 39 out of the grand total of 42 for 2007 come from just one site – Lydlinch. Worse still, the late summer larval web counts show Deadmoor down to 1 from 2 in 2006 and Lydlinch itself down to 2 from 40. Even the larval web count at Rooksmoor, by far the best non-calcicolous site in Dorset, which does not have a transect count, was down from 1,901 to 507. Secondly there may be bad news ahead even for the chalk sites. The number of larval webs at Hod at the end of summer 2007 had dropped to just 9 from the count of 602 at the same time in 2006. Cerne Giant is also down from 5,884 in 2006 but to a still promising 1,688! These booms and slumps are typical of Marsh Fritillary colonies but the steady decline of the non-calcicolous sites looks much more serious.

Lasiommata megera (**WALL**): As is nearly always mentioned in these reports the future for inland Walls looks increasingly desperate. In 2007 the 15 walks in East Dorset produced not a single record. The 15 North Dorset walks

Table 9: Marsh Fritillary on 11 Dorset walks

	Annual Avs/Numbers counted 1995–99	2000–04	2005	2006	2007	Sites used for data
Chalk Downs	225	*200*	1,101	929	**1,690**	Hod, Melbury, Cerne
Non-calcicolous	112	**294**	103	89	*42*	Lydlinch, Deadmoor, Bracketts, Powerstock North, Bridleway and Rail, Kingcombe Redholm and Stones
Totals	*337*	494	1,204	1018	**1,732**	All above

Table 10: Grayling on Dorset walks

Years	Totals	Heathland	Chalk/lime	Portland	No. of sites*
2000	**2,750**	**2,545**	**26**	**179**	18
2001	2,229	2,173	16	40	**26**
2002	1,515	1,510	5		17
2003	1,600	1,506	14	80	20
2004	1,786	1,721	4	61	17
2005	2,120	2,078	5	37	17
2006	1,923	1,905	5	*13*	*13*
2007	*967*	*942*	*1*	24	15

* No. of sites with at least 1 record

could only muster one, counted at Lydlinch Common. The 13 inland walks of West Dorset went one better and scraped up two – at Cerne Giant and Powerstock North. Even on the coast 2007 was a very poor year; the three Portland walks' count dropped to 12 compared to an average of 46 in 2000–04. The three long-standing walks in Purbeck at Ballard Down and Durlstons East and West averaged 100 Walls per year in 2000–04 but fell to 58 in 2007.

Hipparchia semele (**GRAYLING**): In 2007 the Grayling endured its lowest total on walks since 2000. Table 10 demonstrates that both the heath-land and already dwindling Purbeck chalk/limestone sites were part of this trend. Only in Portland was there a very slight improvement on 2006. Altogether a staggering 93% of Dorset's 15 Grayling Transect Walk sites were over 50% below their average annual totals since their walks began.

Recording Dorset butterflies in 2008–09

2009 will be the last year of recording for Butterfly Conservation's third Atlas of butterfly distribution in Britain and Ireland. The first, covering 1995–99, was published as *The Millennium Atlas* and the second, spanning 2000–04, was entitled *The State of Butterflies in Britain and Ireland*. Within this programme 2005–09 will be Dorset's fifth atlas. Earlier publications were *Butterflies of Dorset 1970–84*; *New Atlas of Dorset Butterflies 1980–94*; *Dorset's Millennium Butterfly Population 1995–99*; *Dorset's Butterfly Population 2000–04*. To make sure the 2005–09 Atlas is comparable with earlier ones, recorders and surveyors are urgently needed especially for the following:

1. Recording in the 'White Holes' of Dorset, which have not yet been surveyed. Notable holes can be found in West Dorset around Drimpton (ST 41/04), South Bowood (SY 44/98), Rampisham (ST 56/02) and Bradford Peverill (SY 65/92). North Dorset has recording gaps around Lillington (ST 62/12), Kington Magna (ST 76/23), Manston (ST 81/15) and Chettle (ST 95/13). In the east, White Holes are in evidence among the kilometre squares surrounding Ashley Heath (SU 12/05), Lytchet Matravers (SY 93/94) and Winterborne Kingston (SY 85/97). Woodsford (SY 76/90), in South Dorset, has gaps. For anyone living in these areas the most useful method would be to record selected km squares at least once during sunny days in May, June, July and August over the two years 2008–09.

2. Garden Recording in 10 kilometre squares where nobody else is doing so. Examples would be: Thorncombe (ST 3/0); Charmouth (SY 3/9); Abbotsbury (SY 5/8); Frampton {SY 6/9); Sturminster Newton (ST 7/1); Cranborne (SU 0/1).

3. Volunteering to help survey special sites for the priority Dorset species. The poor weather in 2007 has held up this work. Contact the appropriate Regional Action Plan Co-ordinator listed below.

4. Volunteering to help with Butterfly Transect Walking. There are shortages of walkers all over Dorset but especially in the West and Portland.

5. Using computer skills to help with data inputting. In spite of the 2007 workshop we could still do with some more inputters. David Jeffers has for many years done vital work checking the original paper records against what has appeared on the computer. We desperately need someone to take over this role.

Key contacts for records

1) Dorset Environmental Records Centre: Library HQ, Colliton Park, Dorchester DT1 1XJ. Tel: 01305 225081. E-mail: derc@dorset-cc.gov.uk (Butterfly records are passed on from DERC to Bill Shreeves for verification and eventual data entry)

2) Dorset Butterfly Conservation Records Officer: Bill Shreeves, 5 Butt's Mead, Shaftesbury SP7 8NS. Tel: 01747 852587. E-mail: butterflies@nascr.net (Records can be sent on paper or electronically)

3) Dorset Butterfly Conservation KM Survey Computer Officer: Stephen Brown, 10 Eldridge Close, Dorchester DT1 2JS. Tel. 01305 265369. E-mail: s.brown@miltonabbey.co.uk

4) DBC Transect Walks Computer Officer: David Jeffers, 64 South Court Avenue, Dorchester DT1 2B2. Tel: 01305 264437. E-mail:djj@64-alandale.fsnet.co.uk

5) Dorset Butterfly Conservation Web Site: www.dorset-butterflies.com (Any records sent to the web site are eventually sent on to Bill Shreeves for verification. If you are also sending paper records direct to Bill please make this clear or they will get double entered.)

6) Dorset Butterfly Conservation Garden Records Officers: Adrian and Alison Neil, 15 Littlemoor Road, Weymouth DT3 6LA. Tel: 01305 832937. E-mail: Adrian.neil@madasafish.com (All garden records should be sent to Adrian and Alison.)

7) *Regional Action Plan Survey Co-ordinators*: (If you want to help with surveys please contact the appropriate co-ordinator. Records should be sent to the co-ordinator.)

West Dorset and West Dorset Coast: Chris Paul. (01297 442956)

Blackmoor Vale: Roger Smith (01935 816728)

Central and South Chalk: Lawrie de Whalley (01258 880524)

North Chalk: Bill Shreeves (01747 852587)

Cranborne Chase: Sue Smith (01725 552225)

North and Central Heaths: John Jenking (01202 519644)

South Heaths: Bernard Franklin (01305 786201)

Purbeck: Colin Nunn (01929 439211)

Portland: Paul Green (01305 826147)

Counting Dorset's Butterflies and Moths

A free booklet explaining how to record Dorset's butterflies can be obtained from Lyn Pullen (01305 853946); E-mail: lynpullen@tiscali.co.uk and is highly recommended for anyone planning to record butterflies in Dorset.

MICROLEPIDOPTERA REPORT 2007

Phil Sterling

Records of nationally rare and nationally scarce species (mostly provisional statuses only) have been included, together with records of other interesting species such as rarer immigrants and those not recently recorded in the county. Nomenclature is taken from Bradley, J.D. (2000) 'Checklist of Lepidoptera recorded from the British Isles. Second Edition (Revised)'. Records of a number of nationally scarce species and of some immigrants/partial residents regularly recorded in Dorset, have been omitted from this report. Most data are for 2007, but some important records for earlier years are included; data for all species are held at DERC.

Records were gratefully received from:

AB – Arthur Bryant
BY – Bridget Young
CC – C Court
CMM – Chris Manley
DE – David Evans
D&MG – David & Margaret Godfrey
DF – Dave Foot
DP – Dave Paull
EC – Emma Cockburn
GRH – Gordon Hopkins
HWH – Hugo Wood Homer
IC – Ian Cross
J&DK – Jan & Dave Kingman
JC – Julian Clarke
JCox – Jonathan Cox
KMcC – Kevin McCabe
LdW – Lawrie de Whalley
LH – Les Hill
MC – Martin Cade
MJ – Mike Jeffes
MSP – Mark Parsons
NS – Nigel Spring
PAD – Peter Davey
PB – Paul Benham
PBu – Phil Budd
PB-J – Peter Bruce-Jones
PH – Paul Harris
PHS – Phil Sterling
PNB – Paul Butter
R&LL – Richard & Lyn Lambert
RA – Robert Aquilina
RC – Rees Cox
RE – Roy Eden
RL – Ricky Lambert
RRC – Ray Cook
RS – Bob Steedman
SA – Steve Andrews
SH – Steve Hatch
SMP – Steve Palmer
SPC – Sean Clancy

Other abbreviations

gen. det. – genitalia determined by; conf. – confirmed by; vc = vice-county; coll. – collected; em. – emerged

Ectoedemia decentella Puddletown, at MV on 3.6, 8.6 & 4 on 10.6 (HWH)
Ectoedemia argyropeza Two Mile Coppice, very many mines in *Populus tremula* on 5.11 (PHS)
Heliozela resplendella Puddletown, vacated mine in *Alnus glutinosa* on 11.10 (HWH)
Diplodoma laichartingella Puddletown, at MV on 1.6 (HWH, gen. det. PHS)
Acanthopsyche atra Trigon, tenanted case on 16.4, male emerged (PHS)
Pachythelia villosella St Catherine's Hill (vc11) case on 20.5.04 (D. McCloskey, per RA, conf. PHS); Oakers Bog, case on 26.3.05 (IC); Stoborough Heath female case attached to post on 7.6 (KMcC); Winfrith Heath, case on 4.7 (MSP)
Nemapogon wolffiella Puddletown, at MV on 21.8 (HWH)
Nemapogon ruricolella Puddletown, 5 at MV between 2.6 & 9.6 (HWH)
Lyonetia prunifoliella Puddletown, at MV on 13.10 (HWH, conf. PHS)
Phyllonorycter platani Bridport, few tenanted mines on *Platanus* x *hispanica* on 28.9 (MSP, PHS)
Phyllonorycter strigulatella Bridport, very many tenanted mines on *Alnus incana* on 28.9 (MSP, PHS)
Cameraria ohridella Furzebrook, very many tenanted mines on *Hippocastanum aesculus* on 11.6, adults emerged 18.6 (KMcC); Puddletown, tenanted mines on *Hippocastanum aesculus* on 16.6 (HWH)
Phyllocnistis ramulicola Udden's Plantation, Ferndown, 6 mines in twigs, 3 cocoons on leaves *Salix cinerea* on 29.11, adult emerged 2.12 (PHS)
Argyresthia trifasciata East Lulworth, at MV on 24.5 (LH)
Yponomeuta rorrella Puddletown, at MV on 25.7 (HWH)
Acrolepiopsis marcidella Higher Hyde Nature Reserve, at MV on 7.7 (PHS)
Coleophora conyzae Black Venn, case on 23.5 (MSP); Puddletown, at MV on 22.6 (HWH, gen. det. PHS)
Coleophora vibicella Tidmoor Range, 16 cases on *Genista tinctoria* on 15.5 (MSP) & 30 cases on 25.5 (PHS)
Tachystola acroxantha Wimborne, at light on 14.4 & 29.6 (RS); Holnest, at MV on 21.6 (NS); Sturminster Newton, at MV on 10.7 (NS); Buckland Newton, at MV on 15.7 (GRH, NS); Strouden Park (vc11), at MV on 12.10 (DE)
Luquetia lobella Puddletown, at MV on 8.6, 2 on 9.6 & 2 on 10.6 (HWH)

Depressaria douglasella Powerstock Common, at light on 15.7 (MSP)
Ethmia dodecea Piddles Wood, at MV on 9.6 (PNB, PAD, CMM, LdW); Kingston, at MV on 10.6 (PB); Shapwick, at MV on 14.6 (PAD); Chase Woods, 16 at MV on 16.6 (PAD, J&DK, AB, LdW, SA); West Bexington, at MV on 14.6, 22.6 & 26.6 (RE); West Knighton, at light on 15.7 (PB-J)
Eulamprotes wilkella Hamm Beach, Chesil, 4 larvae in moss *Syntrichia ruraliformis* on 9.4 (PHS)
Argolamprotes micella Walditch, at MV on 15.7 (MSP)
Monochroa moyses Puddletown, at MV on 10.6 (HWH, conf. PHS)
Parachronistis albiceps Chedington Wood, at MV on 14.7 (PAD, PNB, conf. PHS)
Teleiodes vagae Snag Valley, Hartland Moor, at MV on 26.5 (CMM, PAD, DP, SH, gen. det. PHS)
Teleiodes sequax Puddletown, at MV on 10.8 (HWH, gen det. PHS)
Bryotropha basaltinella Kingston, at MV on 30.5 (PB, conf. PHS)
Scrobipalpa atriplicella Holt Heath, at MV on 27.4 (CMM, PAD, DP, SH, gen. det. PHS)
Scrobipalpula tussilaginis St Aldhelm's Head, mines in leaves *Tussilago farfara* on 1.11 (SPC)
Dichomeris alacella Wareham Forest, at MV on 17.7 (MSP, LH, GRH, gen. det. MSP); Puddletown, at MV on 24.7 (HWH, conf. PHS); Wimborne, at light on 15.7 & 20.7 (D&MG, conf. PAD)
Acompsia cinerella Walditch, 2 at MV on 11.8 (MSP)
Mompha terminella Chedington Wood, at MV on 14.7 (PAD, PNB, conf. PHS)
Cosmopterix orichalcea Creech Bottom, at MV on 4.6 (KMcC, gen. det. SMP) & on 7.6 (KMcC); Hurn (vc11) at MV on 7.6 (MJ)
Cosmopterix pulchrimella Durlston, tenanted mines on 1.11 (SPC); Lulworth, 20 adults & many larval mines on 1.11 (SPC, MSP); West Bay, few mines on 2.11 (MSP); Weymouth, 2 tenanted mines on 23.7 (PHS); Puddletown, at MV on 12.10 (HWH, conf. PHS). All mines in *Parietaria judaica*
Phalonidia manniana Chedington Wood, at MV on 14.7 (PAD, PNB, conf. PHS)
Aethes williana Eype's Mouth, at light on 14.6 (MSP)
Archips oporana Wareham Forest, at MV on 17.7 (MSP, LH, GRH)
Cnephasia pasiuana Puddletown, at MV on 13.6 (HWH, gen. det. PHS)
Cnephasia genitalana Puddletown, 4 at MV on 10.8 (HWH, all gen. det. PHS)
Neosphaleroptera nubilana Puddletown, at MV on 30.5 (HWH, conf. PHS)
Spatalistis bifasciana Puddletown, at MV on 31.5 & 3.6 (HWH)
Acleris logiana Winfrith Heath, larva on *Betula pendula* on 8.9, adult emerged 1.10 (PHS)
Olethreutes arcuella Piddles Wood, 4 at MV on 9.6 (PNB, PAD, CMM, LdW)
Apotomis semifasciana Alners Gorse, at MV on 22.7 (PNB); Chedington Wood, 6 on 3.8 (PAD, PNB)
Apotomis sororculana Town Common, at MV on 8.6 (PBu)
Bactra robustana West Bexington, at MV on 8.6 (RE, conf. PHS)
Epinotia nisella f. cinereana Chedington Wood, 2 at MV on 14.7 (PAD, PNB)
Rhopobota stagnana Puddletown, at MV on 13.4 (HWH, gen. det. PHS); Melbury Down, by day on 10.6 (PAD)
Zeiraphera griseana Puddletown, at MV on 27.7 (HWH, conf. PHS)
Strophedra nitidana Piddles Wood, at MV on 9.6 (PNB, PAD, CMM, LdW)
Pammene splendidulana Piddles Wood, at MV on 14.4 (GRH, PNB, D&JK, PB-J); Wyke Wood, 2 at MV on 14.4 (PHS)
Pammene agnotana Chedington Wood, at MV on 26.4 (PAD, PNB, gen. det. PHS)
Pammene argyrana Alners Gorse, at MV on 13.4 (GRH, SH, SP, NS, D&JK, PB-J, RL); Piddles Wood, at MV on 14.4 (GRH, PNB, D&JK, PB-J); Wyke Wood, 12 at MV on 14.4 (PHS)
Pammene albuginana Pimperne, at light on 30.5.03 (PNB); Puddletown, at MV on 23.5 (HWH, conf. PHS); Piddles Wood, at MV on 9.6 (PNB, PAD, CMM, LdW)
Pammene germmana Motcombe, at MV on 23.4 (PNB); Stoborough Heath, by day around oak tree on 3.6 (KMcC); Creech Bottom, at MV on 9.6 (KMcC, conf. SMP)
Grapholita caecana Puddletown, at MV on 7.6 (HWH, conf. PHS)
Grapholita lobarzewskii Chase Wood, at MV on 16.6 (PAD, J&DK, AB, LdW, SA, conf. PHS)
Cydia strobilella Holt Heath, at MV on 27.4 (PAD, CMM, SH, DP, conf. PHS); Puddletown, 2 at MV on 29.4 & 1 at MV on 1.5 (HWH, conf. PHS)
Cydia amplana Hengistbury Head (vc11), 2 at MV on 1.8 (MJ); Puddletown, at MV on 24.8 (HWH); Wyke Regis, at MV on 28.8 (DF)
Cydia illutana Piddles Wood, at MV on 25.5 (PNB, PAD, LdW, PB-J, D&JK, gen. det. PHS)
Cydia conicolana Stoborough Heath, over 100 exit holes in fallen cones *Pinus sylvestris* on 3.6 (KMcC)
Euchromius ocellea West Bexington, at MV on 31.1 (RE, conf. PHS)
Evergestis limbata Coldharbour, on 7.6 (B. Withers, per PAD); Swanage, at MV on 17.6 & 18.8 (RC)
Evergestis extimalis West Bexington, at MV on 19.5 & 21.8 (RE) & on 31.5 (RE, PHS); Portland Bird Observatory, 2 at MV on 11.8 & 1 on 8.9 (MC)
Evergestis pallidata Verwood, on 4.7 (CC); Hurn (vc11), at MV on 17.7 & 20.8 (MJ); East Holme, 3 at actinic light on 5.8 (JCox); East Lulworth, at MV on 14.8 (MSP);
Phlyctaenia perlucidalis Hurn (vc11), at MV on 25.7.05 (MJ); Shapwick, at MV on 8.6 (PAD); Broadcroft Quarry, Portland, at MV on 22.6 (GRH, PNB, NS, EC)
Udea fulvalis Grove Copse (vc11), on 21.8.01 (MJ); Wareham, at light on 13.7 (BY); Wimborne, at light on 30.7, 2.8 & 2 on 6.8 (RS); Ferndown, at MV on 1.8 & 3 on 2.8 (RRC); Swanage, 2 on 2.8, on 6.8, 2 on 9.8, 2 on 11.8, on 22.8, on 2.9, all at MV (RC)
Palpita vitrealis Preston, Weymouth, at MV on 16.7 (RL); Puddletown, at MV on 21.6 & 4.7 (HWH); Broadwey, Weymouth, at MV on 21.6 (PH); Portland Bird Observatory, at MV on 28.7 & 6.8 (MC)
Aglossa pinguinalis Preston, Weymouth, by day indoors on 7.6 (PHS); Ferndown, by day in porch on 26.6 (RRC); Verwood, on 29.6 (CC); Hurn (vc11), at MV on 1.8 (MJ); East Holme, by day in lean-to on 12.8 (J. Cox); Walditch, by day indoors on 2.9 (MSP)
Oncocera semirubella (inland records only) Corfe Mullen, at light on 12.7 (RS); Holt Lodge Farm, at MV on 5.8 (PAD)
Elegia similella Piddles Wood, at MV on 9.6 (PNB, PAD, CMM, LdW); Verwood, on 11.6 (CC); Chase Wood, 2 at MV on 16.6 (PAD, J&DK, AB, LdW , SA)
Assara terebrella Creech Bottom, at MV on 7.6 (KMcC); Wareham Forest, at MV on 12.7 (MSP, LH); Chedington Wood, 8 at MV on 14.7 (PAD, PNB); Puddletown, at MV on 17.7 (HWH)
Ancylosis oblitella Strouden Park (vc11) at MV on 14.7 (DE)
Homoeosoma nebulella Puddletown, at MV on 6.6 (HWH)
Apomyelois bistriatella Holt Heath, at MV on 14.6 (PAD); Puddletown, at MV on 29.6 (HWH); Hurn (vc11), at MV on 12.7 (MJ)
Oxyptilus parvidactylus Durlston, 19 by day on 18.6 & 1 by day on 30.6 (PAD, conf. PHS)
Euleioptilus carphodactyla Puddletown, at MV on 3.8 (HWH)

MACROLEPIDOPTERA REPORT 2007

Peter Davey

The moth records that appear in this report were gratefully received from the individuals or organisations below and other recorders named within the report. Dates are of records from light traps unless stated otherwise.

AP	Angela Peters	MWa	Marjorie Waters
BC	Butterfly Conservation	MJ	Mike Jeffes
BS	Bob Steedman	MPa	Mick Parker
BY	Bridgit Young	MPl	Michael Plaxton
CC	Chris Court	MSP	Mark Parsons
CM	Chris Manley	MWe	Mark Weaver
CP	Clive Pinder	NS	Nigel Spring
D&JK	David and Jan Kingdon	OW	Oliver Woodland
D&MG	David and Margaret Godfrey	PAD	Peter Davey
DC	Dominic Couzens	PB	Paul Benham
DCP	Durlston Country Park	PB-J	Peter Bruce-Jones
DF	Dave Foot	PBu	Paul Butter
DL	David Leadbetter	PE	Phyl England
EC	Emma Cockburn	PH	Paul Harris
GH	Gordon Hopkins	PHS	Phil Sterling
GS	Geoffrey Sell	PK	Peter Knight
HWH	Hugo Wood Homer	PT	Peggy Taylor
JB	Jan Baker	R&MG	Richard and Maureen Adams
JC	Jonathan Cox	RE	Roy Eden
JCl	Julian Clarke	RL	Ricky Lambert
JD	John Down	RRC	Ray Cook
JiF	Jim Fradgley	RW	Roger Ward
JM	Jim Morgan	SB	Sarah-ann Boon
JN	John Newbold	SC	Sean Clancy
JRC	Rees Cox	SMG	Suffolk Moth Group
JuF	Julian Francis	SP	Sue Philp
KC	Keith Clements	TB	Terry Box
KMcC	Kevin McCabe	VG	Vince Giavarini
KT	Kelly Thomas	viaP	Portland Bird Observatory website
LdW	Lawrie de Whalley	viaS	Somerset Moth Group website
LH	Les Hill	WGS	Bill Shreeves
MB	Maurice Budden	ZR	Zoe Randall

Interesting records included the remarkable discovery of a small colony of about three hundred Gypsy Moth caterpillars on the Dorset coast feeding on scrubby oak. This species is not resident here in the UK, and apparently the huge-bodied adult female is exceptionally sedentary to the point where the risk of colonisation via immigration to the UK is deemed impossible, so just how the colony got there remains a complete mystery. The EU rate this as a pest species because of its ability to defoliate trees and shrubs, and thereby cause financial loss to foresters and growers alike, so Defra, who have become aware of the presence of this colony, are apparently in the process of negotiating with the owner to eradicate the colony. David and Jan Kingland, successfully deployed pheromone lures with two local clearwing species putting in an appearance at Spettisbury. Butterfly Conservation at Lulworth undertook Small Eggar larval web searches in the early summer, and a raft of records from Dorset's central chalk belt was obtained. A rash of rare Pug species were seen in 2007, notably the Yarrow Pug at Preston, a new species for the county, the Pauper Pug at Puddletown, the second Dorset record (both Pug species likely wanderers from outside the county), the Thyme Pug another remarkable record from Puddletown, the Angle-barred Pug at West Bexington and Ashington, the Cloaked Pug within a large forest of Norway spruce (the host foodplant) at Wyke Farm, the Pinion-spotted Pug at Shapwick, Marbled Pugs at and near Alners Gorse, the Lead-coloured Pug in Piddles Wood and the Valerian Pug in Chase Wood. The Clouded Magpie at Puddletown was the third record of this super species to be seen in Dorset. October Swallow-tailed Moths numbered five last season; this unusual second brood tendency appears to have become an annual event in recent years. The substantial geometer, the Great Oak Beauty was discovered in two new sites at Piddles Wood and Chase Wood, in the heart of old oak woodland, and the Scarce Merveille du Jour continues to be recorded from Verwood. The Reed Dagger was seen for the second year running at Hengistbury Head.

16 *Hepialus hecta* **GOLD SWIFT** Broadstone, 10.7 (KC)

160 *Phragmataecia castaneae* **REED LEOPARD** Morden Bog, 2 on 5.6 (PAD)

161 *Zeuzera pyrina* **LEOPARD** Shaggs, 8.6 (LH); Kingston, 10.6 (PBe); Broadway, 12.6 (PH); Whitesheet, 14.6 (PAD); Chase Wood, 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews); Wareham, 23.6 (BY); Hurn, 26.6 (MJ); Motcombe, 4 on 4.7, 11.8 (PBu); Merley, 4.7 (D&MG); West Bexington, 8.7 (RE); Verwood, 12.7 (MWe); Broadway, flew out of vegetation by day on 12.7 (PH); Tolpuddle, 14.7, 3.8 (JuF); Alners Gorse, 4.8 (NS, PBu)

162 *Cossus cossus* **GOAT** Swanage, 11.6 (PE)

163 *Adscita statices* **FORESTER** Heath Bottom, by day on 3.6 (MPa); Melbury Down, abundant on 10.6 (PAD)

164 *Adscita geryon* **CISTUS FORESTER** Hogs Hill, by day on 8.6 (KT, MSP, SB)

170 *Zygaena trifolii* **FIVE-SPOT BURNET** ssp palustrella Hod Hill, by day on 2.6 (MPa); Fontmell Down, 9.6 (S.Davis); Melbury Down, abundant on 10.6 (PAD); Sydling St Nicholas, by day on 17.6 (BC);

171 *Zygaena lonicerae* **NARROW-BORDERED FIVE-SPOT BURNET** Pamphill, 5 on 10.6 (PAD); Lytchett Matravers, by day on 29.6 (BC);

17x *Zygaena trifolii* **FIVE-SPOT BURNET** sp. Alners Gorse, by day on 2.6 (NS, PBu), 3 by day on 19.6 (BC); Motcombe, by day on 27.6 (PBu); Lytchett Matravers, by day on 29.6 (BC)

173 *Apoda limacodes* **FESTOON** Highcliffe, 24.5, 10.6, 19.6 (DL); Morden Bog, 5.6 (PAD); Shaggs, 6.6 (LH, ZR), 8.6 (LH); Poole, 6.6, 15.6 (PT); Broadmayne, 7.6, 10.6 (PB-J); Ferndown, 7.6, 9.6 (DC); Verwood, 9.6 (CC, MWe), 12.7 (MWe); Puddletown, 9.6, 10.6, 23.6, 29.6, 5 on 11.7, 14.7, 2 on 15.7, 2 on 17.7 (HWH); Ashington, 10.6, 30.6, 13.7, 15.7 (JiF); Winterborne Stickland, 14.6 (LdW); Merley, 15.6 (D&MG); Chase Wood, 3 on 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews); Hurn, 2 on 19.6 (MJ); Upton Heath, 19.6 (S. Davis); Bloxworth, 22.6, 23.6 (SB); Wareham, 2 on 29.6 (BY); Wareham Forest, 2 on 12.7 (LH, MSP), 17.7 (GRH, LH, MSP); Beacon Hill, 12.7 (BS)

371 *Sesia bembeciformis* **LUNAR HORNET** Shaggs, on Buddleia on 11.7 (LH)

373 *Synanthedon tipuliformis* **CURRANT CLEARWING** Walditch, sitting on currant leaf on 15.6 (MSP); Fortuneswell, found in a garden in the evening on 28.6 (viaP)

378 *Synanthedon andrenaeformis* **ORANGE-TAILED CLEARWING** Spettisbury, 6 to pheromone lure on 10.6 (D&JK)

379 *Synanthedon myopaeformis* **RED-BELTED CLEARWING** Spettisbury, 4 to pheromone lure on 10.6 (D&JK)

382 *Bembecia scopigera* **SIX-BELTED CLEARWING** Coombe Valley, by day on 10.7 (MPa)

1632 *Trichiura crataegi* **PALE EGGAR** West Bexington, 2 on 19.8, 21.8, 22.8, 23.8, 6 on 24.8, 25.8, 3 on 26.8, 27.8, 28.8, 29.8, 30.8, 5 on 31.8, 7.9, 7.9, 16.9, 17.9, 28.9, 4.10 (RE); Gillingham, 2.9, 3.9, 4.9, 15.9 (GRH); Motcombe, 10 on 4.9 (PBu); Spettisbury, 2 on 5.9 (D&JK); Kingston, 2 on 7.9, 2 on 9.9, 3 on 12.9, 19.9, 2 on 21.9, 2.10 (PBe); Kingcombe, 7.9, 8.9 (PHS); Chase Wood, 8.9 (CC, J&DK, PBu, PB-J, P. Smeeth); Walditch, 16.9 (MSP)

1633 *Eriogaster lanestris* **SMALL EGGAR** West Bexington, 11.3, 6 on 27.3, 6 on 28.3, 2 on 1.4, 7 on 2.4, 5.4, 11.4, 5 on 12.4, 4 on 13.4, 2 on 14.4 (RE); Puddletown, 7 on 27.3, 2 on 2.4, 6.4 (HWH); Kingston, 27.3 (PBe); Gillingham, 27.3 (GRH); Winterborne Stickland, 27.3, 10 larval webs on 27.5 (LdW); Shapwick, 2 on 28.3, 6.4, female on 9.4, 2 on 10.4, 29.4 (PAD); Fontmell Down, 11.4 (GRH, JiF, LH, PAD, PBe); Wool, larval web on 29.4 (R. Collier); larval web on 17.5 (MSP); Winterbourne Abbas, 3 larval webs on 9.5, larval web on 11.5 (MSP); East Knighton, larval web on 9.5, larval web on 10.5 (MSP); Whitcombe, larval web on 11.5 (MSP); Winterborne Abbas, 3 larval webs on 11.5 (MSP); Madjeston, larval web on 12.5, larval web on 6.6 (GRH); Cogden Beach, 4 larval webs on 13.5 (MSP); Chickerell, 2 larval webs on 15.5 (MSP); Milborne St. Andrew, 4 larval webs on 16.5 (MSP), larval web on 10.6, larval web on 11.6 (C.Bulman); A35 Roundabout, 2 larval webs on 17.5 (MSP); Slip road off A35, 5 larval webs on 17.5 (MSP), Langton Herring, 3 larval webs on 25.5 (MSP); Huntingford, larval web on 22.5 (GRH); Milton-on-Stour, 6 larval webs on 22.5 (GRH); Melbury Down, larvae in blackthorn on 23.5 (KT); Stourpaine, larval web on 23.5 (KT); Alners Gorse, larval web on 24.5 (KT); Higher Ansty, larval web on 24.5 (KT); Abbotsbury, 4 larval webs on 25.5 (MSP); Tidmoor, larval web on 25.5 (MSP, PHS); Portesham, 3 by day on 25.5 (MSP); Roadside hedge, 3 larval webs on 26.5 (KT, C. Bulman, M. Warren); Ringstead, larval web on 31.5 (D.Thomas); Osmington Mills, larval web on 31.5 (D.Thomas); Caundle Marsh, 3 larval webs on roadside blackthorn on 26.5 (KT); Burton Bradstock, 3 larval webs on 1.6 (MSP); Bothenhampton, larval web on 1.6 (MSP); Lime Kiln Hill, 3 larval webs on 1.6 (MSP); Guys Marsh, larval web on 2.6 (PBu); A30 between Milbourn Port and Sherborne, larval web on 2.6 (PBu); 3 larval webs on 2.6 (NS, PBu); larval web on 3.6 (PBu); Winfrith Newburgh, larval web on 7.6 (MSP); Briantspuddle, larval web on 11.6 (P. Mackie); A35 near Askerswell, larval web on 20.6 (MSP); A354 east of Winterborne Whitchurch, larval web on 25.6 (PBu); West Lulworth, 2 larval webs on 3.7 (MSP); New Buildings, larval web on 4.7 (MSP)

1642 *Gastropacha quercifolia* **LAPPET** West Bexington, 16.6, 17.6, 20.6, 21.6, 2 on 23.6, 3.7, 3 on 4.7, 6.7, 7.7, 2 on 10.7, 11.7, 2 on 12.7, 17.7, 22.7, 31.7, 4.8 (RE); Spettisbury, 21.6 (D&JK); Winterborne Stickland, 28.6, 1.7 (LdW); Puddletown, 3.7, 4.7, 10.7, 16.7, 17.7, 18.7, 19.7 (HWH); Swanage, 7.7 (PE); Walditch, 12.7 (MSP); Kingston, 12.7 (PBe); Chedington Wood, 14.7 (PAD, PBu); Tolpuddle, 14.7 (JuF)

1643 *Pavonia pavonia* **EMPEROR** Ferndown, 15.4 (DC); Holt Heath, 3 on 27.4 (CM, PAD, D. Paull, S. Hatch); Hurn, 7.5 (MJ)

1653 *Habrosyne pyritoides* **BUFF ARCHES** West Bexington, 3.10 (RE)

1659 *Achlya flavicornis* **YELLOW HORNED** Hurn, 23.2, 25.2, 3 on 2.3, 3 on 4.3, 5 on 7.3, 9 on 8.3, 7 on 9.3, 7 on 10.3, 9 on 11.3, 12 on 13.3, 2 on 14.3, 5 on 16.3, 24.3 (MJ); Trigon, 6 on 10.3, 6 on 16.3 (CM); Shaggs, 4.3, 5 on 6.3, 2 on 7.3, 4 on 7.3, 2 on 8.3, 4 on 8.3, 9.3, 3 on 11.3, 12.3, 7 on 12.3, 13.3, 14.3, 15.3, 2 on 16.3, 22.3, 25.3 (LH); Puddletown, 10.3, 16.3 (HWH); Ashington, 13.3 (JiF); Ferndown, 2 on 15.3 (DC); Verwood, 7 on 15.3, 3 on 16.3 (MWe); Morden Bog, 20 on 16.3 (PAD); Piddles Wood, 3 on 17.3 (PAD, PB-J); Nordon, 2 on 1.4 (PAD)

1660 *Polyploca ridens* **FROSTED GREEN** Chedington Wood, 4 on 6.4 (PAD, PBu, PHS), 25.4 (PAD, PBu); Hurn, 4 on 6.4, 8.4, 4 on 10.4, 4 on 11.4, 3 on 12.4, 8 on 15.4, 4 on 16.4, 17.4, 19.4 (MJ); Verwood, 7.4 (MWe); Kilwood, 8.4 (PAD); Ashington, 9.4, 14.4, 15.4, 16.4, 24.4 (JiF); Nordon, 4 on 8.4 (PAD); Motcombe, 10 on 9.4 (PBu); Trigon, 12.4, 2 on 15.4, 3 on 16.4, 20.4, 21.4, 2 on 22.4 (CM); Alners Gorse, 26 on 12.4 (PAD); 29 on 13.4 (J&DK, NS, PB-J, R&L. Lambert, S. Hatch, D. Paull); Shaggs, 2 on 12.4, 2 on 14.4, 15.4, 2 on 17.4, 3 on 18.4, 24.4 (LH), 2 on 16.4 (KT, LH); 19.4 (LH, ZR); Kingston, 2 on 13.4, 4 on 14.4, 2 on 18.4, 5 on 20.4, 2 on 24.4 (PBe); Piddles Wood, 100 on 14.4 (D&JK, GRH, PB-J); Holt Heath, 18 on 13.4 (PAD), 27.4 (CM, PAD, D. Paull, S. Hatch); Boys Wood, 86 on 14.4 (PAD); Ferndown, 2 on 15.4, 22.4 (DC); Winterborne Stickland, 15.4, 16.4 (LdW); Alweston, 17.4 (NS); Corfe Mullen, 21.4 (R&L. Lambert); Bloxworth Heath, 23.4 (PAD)

1661 *Archiearis parthenias* **ORANGE UNDERWING** Holt Heath, flying among birch on 11.3 (PAD); Ashley Wood, by day on 29.3 (MPa); Gore Heath, settling on track by day on 17.4 (I.Cross); Hurn, by day on 2.4, by day on 11.4, by day on 29.4 (MJ)

1662 *Archiearis notha* **LIGHT ORANGE UNDERWING** Boys Wood, 3 flying in the lee of and alighting on aspen canopy on 1.4, 100 flying around among aspen groves on 6.4 (PAD); near Stourhead, around aspen in woodland by day on 8.4 (B. Urwin)

1665 *Pseudoterpna pruinata atropunctaria* **GRASS EMERALD** Tolpuddle, 13.10 (JuF)

1667 *Comibaena bajularia* **BLOTCHED EMERALD** Verwood, 1.6 (MWe); Alners Gorse, 2.6 (NS,PBu); Hurn, 3.6, 5.6, 6.6, 7.6, 8.6 (MJ); Ashington, 4.6, 8.6, 10.6, 12.6 (JiF); Ferndown, 2 on 7.6, 9.6, 11.6 (DC); Chedington Wood, 8.6 (PAD); Winterborne Stickland, 8.6 (LdW); Piddles Wood, 9 on 9.6 (CM, LdW, PAD, PBu); Bloxworth, 10 on 9.6, 16.6, 2 on 22.6 (SB); Kingston, 10.6, 12.6 (PBe); Wimborne, 11.6 (D&MG); Whitesheet, 14.6 (PAD); Chase Wood, 14 on 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews)

1670 *Chlorissa viridata* **SMALL GRASS EMERALD** Wareham Forest, by day on 25.5 (M. Forster); Ashington, 12.6 (JiF); Creech Bottom, 4.6, 9.6 (K. McCabe); Stoborough Heath, 2 by day on 7.6 (K. McCabe)

1674 *Jodis lactearia* **LITTLE EMERALD** Kingston, 22.5, 2 on 10.6 (PBe); Piddles Wood, 9.6 (CM, LdW, PAD, PBu); Wareham, 10.6 (R&MA); Wareham Forest, 3 on 11.6 (PAD); Mosterton, 18.6 (NS); Tolpuddle, 22.6 (JuF)

1675 *Cyclophora pendularia* **DINGY MOCHA** Holt Heath, 13.4 (PAD), 16 on 27.4 (CM, PAD, D. Paull, S. Hatch); Alners Gorse, 13.4 (J&DK, NS, PB-J, R&L. Lambert, S. Hatch, D. Paull); Wareham, 27.4 (R&MA); Wareham Forest, 17.5 (PAD); Winfrith Heath, 2 larvae by day on 3.9 (MSP, R. Wolton, P. Burgess); Parley Common, 7 larvae beaten from sallow on 9.9 (RRC)

1676 *Cyclophora annulata* **MOCHA** Puddletown, 13.4, 1.5, 17.5, 14.7, 16.7 (HWH); Chedington Wood, 3 on 25.4 (PAD, PBu), 3 on 8.6 (PAD), 2 on 3.8 (PAD, PBu, J. McGill, P. Chapman); Portland Bird Observatory,

13.5 (viaP); Broadmayne, 4.8 (PB-J); Alners Gorse, 4.8 (PBu); Forest Gate, 11.8 (DF); Wyke Wood, 17.8 (PHS); Swanage, 23.8 (JRC); Lyme Regis, 24.8 (MWa); Kingston, 24.8 (PBe)

1677 *Cyclophora albipunctata* **BIRCH MOCHA** Shaggs, 16.4, 25.4, 29.4, 5.5 (LH); Verwood, 19.4, 20.4 (MWe), 27.4, 1.5 (CC); Bloxworth Heath, 3 on 23.4 (PAD); Ashington, 24.4, 18.5 (JiF); Ferndown, 25.4, 28.4 (DC); Hurn, 27.4, 7.5, 2 on 8.5, 16.5, 17.5 (MJ); Holt Heath, 16 on 27.4 (CM, PAD, D. Paull, S. Hatch); Nordon, 1.5 (PAD); Trigon, 2 on 6.5, 2.9 (CM); Canford Heath, 12.5 (T.Elborn); Corfe Mullen, 2 on 24.5 (R&L. Lambert); Creech Bottom, 8.6, 9.6, 10.6 (K. McCabe); Wareham Forest, 17.7 (GRH, LH, MSP), 24.7 (MSP, PAD, J. Hughes); East Holme, 19.7 (JC); Hengistbury Head, 2 on 1.8 (MJ); Arne, 9.8, 17.8 (S. Morgan); Burton, Christchurch, 12.8 (J. Southworth)

1678 *Cyclophora puppillaria* **BLAIR'S MOCHA** Ashington, 18.5 (JiF); Burton, Christchurch, 5.8 (J.Southworth); Charmouth, 6.8 (GS);

1689 *Scopula marginepunctata* **MULLEIN WAVE** West Bexington, 6.5, 15.5, 23.6, 27.6, 8.8, 16.8, 17.8, 24.8 (RE), 22.8 (PHS); Portland Bird Observatory, 6.5 (viaP); Walditch, 7.5 (MSP); East Holme, 15.5, 8.6 (JC); Swanage, 17.5 (PE); Hurn, 21.5, 17.6 (MJ); Black Ven, 22.5 (MSP); Shaggs, 22.5, 25.5, 26.5 (LH); Wareham, 2 on 22.5, 8.6, 2 on 3.8, 9.8 (BY), 3.8 (R&MA); Chickerell, 3.6, 16.6, 23.6, 26.6 (CP); Spettisbury, 12.6 (D&JK); Eype's Mouth, 14.6 (MSP); Broadmayne, 22.6 (PB-J); Kimmeridge, by day on 2.7 (P. Hugo); Beacon Hill, 2 on 9.8 (BS); Arne, 9.8 (S. Morgan); Puddletown, 27.8 (HWH)

1692 *Scopula immutata* **LESSER CREAM WAVE** Creech Bottom, 3.6 (K. McCabe); Ashington, 4.6, 28.7 (JiF); Tolpuddle, 14.7, 21.7, 27.7 (JuF)

1693 *Scopula floslactata* **CREAM WAVE** Puddletown, 5.5, 12.5 (HWH); Piddles Wood, 25.5 (D&JK, LdW, PAD, PBu, PB-J); Verwood, 1.6 (MWe); Chedington Wood, 8.6 (PAD); Creech Bottom, 11.6 (K. McCabe); Shaggs, 13.6 (MSP)

1698 *Idaea muricata* **PURPLE-BORDERED GOLD** Wareham Forest, 4 by day on 27.6 (HWH); Verwood, 12.7 (MWe)

1699 *Idaea vulpinaria atrosignaria* **LEAST CARPET** Portland Bird Observatory, 9.6 (viaP); Winterborne Stickland, 28.6, 13.8 (LdW); Swanage, 5.8 (PE); Burton, Christchurch, 5.8 (J.Southworth); West Bexington, 10.8 (RE)

1701 *Idaea sylvestraria* **DOTTED BORDER WAVE** Wareham Forest, 12.7 (LH, MSP), 24.7 (MSP, PAD, J. Hughes)

1702 *Idaea biselata* **SMALL FAN-FOOTED WAVE** West Bexington, 7.10 (RE)

1712 *Idaea emarginata* **SMALL SCALLOP** Hurn, 12.7 (MJ); Motcombe, 19.7 (PBu); Arne, 5.8, 6.8, 7.8, 8.8 (S. Morgan); Broadstone, 24.8 (KC)

1714 *Idaea degeneraria* **PORTLAND RIBBON WAVE** West Bexington, 4.6, 24.8, 31.8 (RE); Portland, 3 on 7.6 (R. Hilton, P. Clarke); Broadcroft Quarry, 2 on 22.6 (EC, GRH, NS, PBu); Preston, 30.8 (RL)

1715 *Idaea straminata* **PLAIN WAVE** Creech Bottom, 9.6, 11.6 (K.McCabe); Ashington, 30.6, 15.7, 28.7, 25.8 (JiF); Wareham Forest, 12.7 (LH, MSP), 17.7 (GRH, LH, MSP), 24.7 (MSP, PAD, J. Hughes); Hurn, 12.7 (MJ); Trigon, 22.7, 24.7, 30.8 (CM); Holt Lodge Farm, 5.8 (PAD); Arne, 5.8, 6.8, 8.8, 10.8, 12.8 (S.Morgan); Arne, 16.8 (S. Morgan)

1719 *Orthonama vittata* **OBLIQUE CARPET** Burton, Christchurch, 25.8 (J. Southworth)

1720 *Orthonama obstipata* **GEM** Puddletown, 24.4, 5.8, 10.8 (HWH); Portland Bird Observatory, 30.4, 14.10, 17.10, 18.10, 21.10, 27.10, 31.10, 1.11 (viaP); West Bexington, 10.6, 2 on 4.8 (RE); Hurn, 19.6 (MJ); Ashington, 7.8 (JiF); Shaggs, male on 14.10 (LH); Preston, 14.10 (RL); Poole, 14.10 (VG); Durlston, male on 25.10 (JCl), 2 on 31.10 (MSP,S.Clancy)

1721 *Xanthorhoe biriviata* **BALSAM CARPET** Hurn, 10.4 (MJ)

1722 *Xanthorhoe designata* **FLAME CARPET** West Bexington, 3.10 (RE)

1725 *Xanthorhoe ferrugata* **DARK-BARRED TWIN-SPOT CARPET** Hurn, 29.4, 13.7, 24.7, 2 on 4.8 (MJ); Ashington, 1.11 (JiF)

1727 *Xanthorhoe montanata* **SILVER-GROUND CARPET** Swanage, 13.10 (JRC)

1731 *Scotopteryx bipunctaria cretata* **CHALK CARPET** Freshwater Bay, 2 by day on 9.7 (MSP); Isle Of Portland, by day on 10.7 (viaP); Eggardon Hill, 15.7 (MSP); Charmouth, 16.7 (GS); Bindon, by day on 4.8 (OW); Burton Bradstock, 4 by day on 11.8 (MSP); Osmington, by day on 23.8 (LdW)

1734 *Scotopteryx luridata plumbaria* **JULY BELLE** Tidmoor Range, by day on 25.5, 7 on 3.6 (PHS); Chickerell, 1.6 (CP); Abbotsbury Castle, by day on 1.6 (MSP); Alners Gorse, 15 on 2.6 (NS, PBu); Ferndown, 2 on 2.8 (DC)

1735 *Catarhoe rubidata* **RUDDY CARPET** Black Ven, 22.5 (MSP); Portland, 7.6 (R. Hilton, P. Clarke); Puddletown, 12.6, 29.6 (HWH); Burleston Grove, by day on 7.7 (RRC); Lyme Regis, 3.8 (OW)

1738 *Epirrhoe alternata* **COMMON CARPET** Chickerell, 28.9 (CP); Beaminster, 2 on 3.10 (SP)

1739 *Epirrhoe rivata* **WOOD CARPET** West Bexington, 2 on 10.6 (RE); Burleston Grove, 3 by day on 7.7 (RRC); Puddletown, 2 on 11.7, 8.9 (HWH)

1740 *Epirrhoe galiata* **GALIUM CARPET** Portland Bird Observatory, 4.5 (viaP); Eggardon Hill, 15.7 (MSP); West Bexington, 24.7, 8.8, 28.8 (RE); Beaminster, 3.8 (SP)

1745 *Larentia clavaria* **MALLOW** West Bexington, 21.9, 3.10, 4.10, 7.10, 11.10, 12.10, 13.10, 14.10, 15.10, 16.10, 21.10, 22.10, 24.10, 25.10, 26.10, 29.10, 30.10, 1.11 (RE); Walditch, 2.10 (MSP); Lyme Regis, 2.10 (MWa); Portland Bird Observatory, 8.10 (viaP); Southwell, 2 on 13.10 (PH); Ferndown, 14.10 (RRC); Wareham, 25.10 (BY)

1749 *Pelurga comitata* **DARK SPINACH** Portland Bird Observatory, 6.8 (viaP); Forest Gate, 11.8 (DF); West Bexington, 15.8 (RE); East Holme, 21.8 (JC)

1750 *Lampropteryx suffumata* **WATER CARPET** Chedington Wood, 6.4 (PAD, PBu, PHS), 6 on 25.4 (PAD, PBu); Fontmell Down, 3 on 11.4 (GRH, JiF, LH, PAD, PBe); Shaggs, 11.4, 12.4 (LH, ZR), 15.4 (LH); Puddletown, 13.4 (HWH); Powerstock Common, 13.4 (LH, MSP); Piddles Wood, 8 on 14.4 (D&JK, GRH, PB-J); Little Minterne Hill, 7 on 14.4 (T.Box); Wyke Wood, 14.4 (PHS); Duncliffe Wood, 6 on 20.4 (PBu); 6 on 22.4 (LdW, PBu)

1751 *Lampropteryx otregiata* **DEVON CARPET** Powerstock Common, 13.4 (LH, MSP, ZR); Shaggs, 23.4 (LH); Chedington Wood, 25.4 (PAD,PBu), 8.6 (PAD), 5 on 3.8 (PAD, PBu, J. McGill, P. Chapman)

1755 *Eulithis testata* **CHEVRON** Hurn, 26.6, 21.8 (MJ); Powerstock Common, 15.7 (MSP); Ferndown, 2.8 (DC); Arne, 15.8 (S. Morgan); Poole, 8.9 (PT); Blackdown, 28.8 (T. Box); Wareham, 27.9 (R&MA)

1757 *Eulithis mellinata* **SPINACH** Christchurch, 29.5 (P. Hugo); Ashington, 12.6 (JiF); Fortuneswell, 14.6 (EC); Hurn, 17.6, 23.6 (MJ)

1762 *Chloroclysta citrata* **DARK MARBLED CARPET** Chedington Wood, 3.8 (PAD, PBu, J. McGill, P. Chapman)

1766 *Plemyria rubiginata* **BLUE-BORDERED CARPET** West Bexington, 11.6, 14.6, 16.6, 23.6, 29.6, 8.7, 10.7, 11.7, 12.7, 15.7, 18.7, 21.7, 1.8, 18.8 (RE); Alners Gorse, 7 on 15.6 (PBu); Motcombe, 4 on 15.6 (PBu); Puddletown, 18.6, 13.7 (HWH); Portland Bird Observatory, 20.6 (viaP); Broadway, 29.6 (PH); Swanage, 5.7 (JRC); Hurn, 12.7, 13.7 (MJ)

1771.1 *Thera cupressata* **CYPRESS CARPET** Broadway, 13.4, 25.5, 12.6, 2 on 12.10, 14.10, 25.10 (PH); Wareham, 15.4, 7.11 (R&MA), 28.4 (BY); West Bexington, 28.4, 29.4, 1.5, 2.5, 2 on 17.5, 23.5, 3 on 24.5, 26.5, 29.5, 2.6, 6.6, 10.6, 12.6, 27.9, 28.9, 2 on 9.10, 10.10, 4 on 11.10, 4 on 12.10, 2 on 13.10, 5 on 14.10, 2 on 15.10, 5 on 16.10, 2 on 17.10, 18.10, 19.10, 20.10, 21.10, 2 on 24.10, 26.10, 28.10, 29.10, 31.10, 2 on 1.11, 3.11, 4.11, 5.11, 7.11, 28.11, 29.11 (RE), 31.5 (PHS, RE), 28.9 (PHS); Poole, 22.4, 16.5, 6.7, 22.9, 3 on 30.9, 14.10 (VG), 6.6, 8.6, 13.10 (PT); Fortuneswell, 30.4, 5.6, 6.6 (EC); Chickerell, 5.5, 15.5, 23.5, 12.6, 4.10, 5.10, 11.10, 2 on 24.10, 31.10, 1.11 (CP); Walditch, 8.5, 5.6, 7.6, 4 on 12.10, 16.10 (MSP); Canford Heath, 12.5 (T. Elborn); Swanage, 13.5 (JRC); 6.6 (PE); 19.6, 13.10, 14.10 (JRC); Shaggs, 15.5 (MSP), 8.6, 13.10 (LH); Ashington, 18.5, 1.11 (JiF); Studland, 23.5 (A. McCaffery, D. Sheldon); Broadmayne, 3 on 23.5, 2 on 24.5, 29.5, 1.6, 2.6, 4.6, 7.6, 12.6, 22.9, 5.10, 7.10, 12.10, 13.10, 15.10 (PB-J); Highcliffe, 24.5, 25.5, 8.6, 19.6, 8.10 (DL); Winterborne Stickland, 24.5 (LdW); Portland Bird Observatory, 24.5 (viaP); Ferndown, 7.6, 2 on 9.6 (DC); Durlston, 7.6 (DCP), 14.10 (PAD, RRC, A. Page), 10 on 31.10 (MSP, S. Clancy), 1.11 (LH, S. Clancy); Shapwick, 8.6 (PAD); Weymouth, 12.6 (PHS); Charmouth, 13.6, 1.11(2) (GS); Bridport, 14.6, 22.10 (MB); Hurn, 17.6 (MJ); Broadcroft Quarry, 22.6 (EC, GRH, NS, PBu); Preston, 12.10, 1.11, 3.11 (RL); Southwell, 13.10 (PH); Corfe Mullen, 13.10 (R&L. Lambert); Puddletown, 14.10, 26.11 (HWH); Milton-on-Stour, 15.10, 30.10 (J.Burge); Verwood, 22.10 (CC); Gillingham, 30.10 (GRH); Burton, Christchurch, 5 on 31.10 (J.Southworth)

1775 *Colostigia multistrigaria* **MOTTLED GREY** Portland Bird Observatory, 15.1 (viaP); West Bexington, 5.4 (RE)

1778 *Hydriomena impluviata* **MAY HIGHFLYER** Hurn, 23.4, 3 on 7.5, 23.5, 29.5 (MJ); Chedington Wood, 25.4 (PAD, PBu); Motcombe, 29.4 (PBu); Chilfrome, 17.5 (SP); Wareham, 8.6 (BY); Maiden Newton, 11.6 (NS); Evershot, 12.6 (NS); Slop Bog, 15.6 (I.Cross, P.Jones); Chase Wood, 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews)

1779 *Hydriomena ruberata* **RUDDY HIGHFLYER** Holt Heath, 2 on 27.4 (CM, PAD, D. Paull, S. Hatch)

1789 *Rheumaptera undulata* **SCALLOP SHELL** Portland Bird Observatory, 31.5 (viaP); Creech Bottom, 10.6 (K.McCabe); Evershot, 12.6 (NS); Shaggs, 19.6 (MSP), 21.6, 1.8 (LH); Hurn, 23.6 (MJ); Verwood, 12.7 (MWe); Chedington Wood, 3 on 14.7 (PAD, PBu); Ashington, 15.7 (JiF); Swanage, 16.7 (JRC); Wareham Forest, 17.7 (GRH, LH, MSP); Puddletown, 25.7 (HWH)

1790 *Triphosa dubitata* **TISSUE** West Bexington, 13.4 (RE)

1791 *Philereme vetulata* **BROWN SCALLOP** Shapwick, 14.6 (PAD)

1792 *Philereme transversata* **DARK UMBER** West Bexington, 11.7 (RE); Spettisbury, 2.8, 3.8 (D&JK)

1793 *Euphyia biangulata* **CLOAKED CARPET** Verwood, 29.6 (CC); Kingcombe Centre, 29.6 (NS); East Holme, 7.7 (JC); Stonebarrow, 3 on 7.7 (T. Box); West Bexington, 2.8, 7.8 (RE); Charmouth, 12.7 (GS)

1794 *Euphyia unangulata* **SHARP-ANGLED CARPET** Stonebarrow, 2 on 7.7 (T. Box); West Bexington, 20.7, 21.7, 24.8 (RE), 17.8, 27.8 (PHS); Walditch, 6.9 (MSP); Kingcombe, 7.9 (PHS); Lankham Bottom, 21.9 (LdW, NS, PB-J)

1804 *Perizoma bifaciata* **BARRED RIVULET** Portland Bird Observatory, 1.8 (viaP); West Bexington, 28.8 (RE)

1807 *Perizoma albulata* **GRASS RIVULET** Durlston, among the grass by day on 5.6, by day on 8.6 (DCP)

1811 *Eupithecia tenuiata* **SLENDER PUG** Broadway, 2 on 11.7 (PH); Chedington Wood, 4 on 14.7 (PAD, PBu); Wareham Forest, 17.7 (GRH,LH,MSP), 24.7 (MSP, PAD, J. Hughes); Puddletown, 17.7, 18.7 (HWH), 3.8 (PAD, PBu); West Bexington, 21.7 (RE); Bridport, 24.7 (MB)

1812 *Eupithecia inturbata* **MAPLE PUG** Broadway, 13.7, 15.7, 21.7 (PH); Chedington Wood, 14.7 (PAD,PBu), 2 on 3.8 (PAD, PBu, J. McGill, P. Chapman); Puddletown, 19.7, 22.8 (HWH); Motcombe, 3 on 19.7 (PBu); West Bexington, 2.8 (RE); Kingston, 7.8 (PBe)

1814 *Eupithecia plumbeolata* **LEAD-COLOURED PUG** Piddles Wood, 10 on 9.6 (CM, LdW, PAD, PBu)

1815 *Eupithecia abietaria* **CLOAKED PUG** Chedington Wood, 14.7 (PAD, PBu)

1816 *Eupithecia linariata* **TOADFLAX PUG** Chilfrome, 10.6 (SP); Chickerell, 21.6 (CP); Ashington, 21.6 (JiF); West Bexington, 24.6, 7.7, 2 on 10.7, 24.8, 31.8 (RE), 2.9 (M.Sterling); Puddletown, 2.7, 4.9, 8.9, 12.9, 16.9 (HWH)

1818 *Eupithecia irriguata* **MARBLED PUG** Alners Gorse, 4 on 13.4 (J&DK, NS, PB-J, R&L, Lambert, S. Hatch, D. Paull); Kingston, 28.4 (PBe)

1820 *Eupithecia insigniata* **PINION-SPOTTED PUG** Shapwick, 24.4, 27.4 (PAD)

1821 *Eupithecia valerianata* **VALERIAN PUG** Chase Wood, 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews)

1823 *Eupithecia venosata* **NETTED PUG** Swanage, 23.5 (JRC); Verwood, 7.6 (CC, MWe)

1824 *Eupithecia egenaria* **PAUPER PUG** Puddletown, 8.6 (HWH)

1832 *Eupithecia assimilata* **CURRANT PUG** Shaggs, 14.4, 2 on 29.4 (LH); Puddletown, 18.4, 29.4, 20.5, 16.6 (HWH); Bridport, 27.4, 22.8 (MB); Kingston, 28.4, 7.8, 9.8, 24.8, 26.8 (PBe); Gillingham, 3.5 (GRH); Verwood, 19.5 (CC); Dorchester, 3.6, 10.6 (JD); Fortuneswell, 6.6 (EC); West Bexington, 7.6, 21.6, 22.6, 14.7, 23.8, 24.8, 25.8 (RE); Walditch, 8.6 (MSP); Hengistbury Head, 1.8 (MJ); Chickerell, 5.8, 2 on 21.8, 22.8, 2 on 31.8, 3.9, 4.9 (CP); Broadmayne, 11.8, 22.8 (PB-J)

1835 *Eupithecia tripunctaria* **WHITE-SPOTTED PUG** Shaggs, 15.4, 2 on 16.4, 1.8 (LH); Ferndown, 25.4, 3 on 1.5 (DC); Puddletown, 29.4, 30.4, 2 on 1.5, 4.6, 2.8, 3.8, 2 on 5.8, 2 on 9.8, 3 on 10.8 (HWH); Poole, 3.6, 23.8 (VG); Motcombe, 3.6 (PBu); Broadmayne, 21.7, 27.7 (PB-J); Shaftesbury, 24.7 (WGS); Chedington Wood, 3.8 (PAD, PBu), 3.8 (PAD, PBu, J. McGill, P. Chapman); Walditch, 4.8 (MSP); West Bexington, 26.8 (RE)

1838 *Eupithecia icterata* **TAWNY-SPECKLED PUG** Swanage, 23.5, 28.8, 3.9 (JRC); Ashington, 23.6 (JiF); Poole, 10.7 (VG); West Bexington, 14.7, 5.8, 6.8, 9.8 (RE); Holt Lodge Farm, 5.8 (PAD); Puddletown, 21.8, 22.8, 24.8 (HWH); Wareham, 28.8 (BY)

1839 *Eupithecia succenturiata* **BORDERED PUG** Broadmayne, 21.6 (PB-J); Puddletown, 15.7 (HWH); West Bexington, 19.7 (RE)

1840 *Eupithecia subumbrata* **SHADED PUG** Portland Bird Observatory, 22.5 (viaP); Kingston, 10.6 (PBe); Broadcroft Quarry, 6 on 22.6 (EC, GRH, NS, PBu)

1841 *Eupithecia millefoliata* **YARROW PUG** Preston, 29.6 (M. Forster)

1842 *Eupithecia simpliciata* **PLAIN PUG** Chickerell, 11.7 (CP); West Bexington, 15.7, 21.7, 23.7, 12.8 (RE); Gillingham, 23.7, 24.7 (GRH)

1843 *Eupithecia distinctaria constricta* **THYME PUG** Puddletown, 9.6 (HWH)

1844 *Eupithecia indigata* **OCHREOUS PUG** Bloxworth Heath, 23.4 (PAD); Walditch, 27.4 (MSP); Holt Heath, 27.4 (CM, PAD, D. Paull, S. Hatch); Puddletown, 29.4, 1.5, 2 on 2.5, 2 on 5.5, 8.5 (HWH); Broadmayne, 2.5 (PB-J); Hurn, 7.5 (MJ)

1849 *Eupithecia innotata* **ANGLE-BARRED PUG** Puddletown, 9.6, 12.9 (HWH); Ashington, 30.6 (JiF)

1855 *Eupithecia phoeniceata* **CYPRESS PUG** West Bexington, 3.5 (PHS, RE), 14.6, 26.6, 7.8, 18.8, 24.8, 25.8, 27.8, 31.8, 16.9, 19.9, 21.9, 27.9, 2.10, 25.10, 28.10, 30.10 (RE), 28.9 (PHS); Ashington, 19.8, 29.8 (JiF); Grove Copse, 21.8 (MJ); Chickerell, 21.8, 24.8, 12.10 (CP); Poole, 2 on 23.8, 25.8, 2 on 1.9, 7.9, 12.9, 2 on 30.9 (VG), 8.9, 30.9 (PT); Swanage, 25.8, 31.8, 6.9, 8.9, 9.9 (JRC); Motcombe, 31.8 (PBu); Burton, Christchurch, 8.9 (J. Southworth); Highcliffe, 9.9 (DL); Wareham, 21.9 (BY and R&MA); Walditch, 28.9 (MSP); Broadmayne, 3.10 (PB-J); Middlebere Farm, 8.10 (R. Ward)

1856 *Eupithecia lariciata* **LARCH PUG** Broadmayne, 29.4 (PB-J); Puddletown, 2 on 3.6, 19.7 (HWH)

1857 *Eupithecia tantillaria* **DWARF PUG** Chedington Wood, 19 on 25.4 (PAD, PBu)

1859 *Chloroclystis chloerata* **SLOE PUG** West Bexington, 23.5, 29.5, 2.6, 4.6, 8.6, 10.6, 12.6, 22.6, 26.6 (RE); Alners Gorse, 2.6 (NS, PBu)

1860 *Chloroclystis rectangulata* **GREEN PUG** Swanage, 27.10 (JRC)

1864 *Chesias legatella* **STREAK** Ashington, 2.10 (JiF)

1867 *Aplocera plagiata* **TREBLE-BAR** Shaggs, 21.4, 22.4 (LH); Christchurch, 28.4 (P. Hugo); Swanage, 10.8 (PE)

1868 *Aplocera efformata* **LESSER TREBLE-BAR** Arne, 4.8, 9.8, 13.8 (S. Morgan); Hurn, 16.9 (MJ)

1870 *Odezia atrata* **CHIMNEY SWEEPER** Corfe Common, by day on 17.6 (D&MG)

1874 *Euchoeca nebulata* **DINGY SHELL** Hurn, 4.6, 8.6, 17.6, 20.6, 5.8, 7.8 (MJ); Chedington Wood, 2 on 14.7 (PAD, PBu); West Bexington, 22.8 (RE)

1878 *Minoa murinata* **DRAB LOOPER** Stubhampton Bottom, by day on 29.4 (PAD); Ashmore Forest, 17 by day on 23.5 (KT, C. Hurst); Harbin's Park, by day on 26.5 (MPa)

1879 *Lobophora halterata* **SERAPHIM** Bloxworth Heath, 23.4 (PAD); Chedington Wood, 2 on 25.4 (PAD, PBu); West Bexington, 24.5, 2.6 (RE); Ryewater Nursery, 25.5 (NS); Shaggs, 26.5 (LH); Creech Bottom, 4.6 (K. McCabe)

1880 *Trichopteryx polycommata* **BARRED TOOTH-STRIPED** Fontmell Down, by torch light on 11.4 (GRH, JiF, LH, PAD,PBe)

1885 *Abraxas sylvata* **CLOUDED MAGPIE** Puddletown, 9.9 (HWH)

1887 *Lomaspilis marginata* **CLOUDED BORDER** Shaggs, 12.10 (LH)

1889 *Semiothisa notata* **PEACOCK** Ashington, 16.4 (JiF); Wimborne, 15.5 (BS); Creech Bottom, 12.6 (K. McCabe); Hurn, 24.7 (MJ); Arne, 4.8, 5.8, 8.8 (S. Morgan)

1901 *Cepphis advenaria* **LITTLE THORN** Shaggs, 29.4 (LH)

1903 *Plagodis pulveraria* **BARRED UMBER** Minterne Seat Coppice, 14.4 (T. Box); Chedington Wood, 4 on 25.4 (PAD, PBu); Holt Heath, 27.4 (CM, PAD, D. Paull, S. Hatch); Charmouth, 8.5 (GS); Piddles Wood, 9.6 (CM, LdW, PAD, PBu)

1909 *Pseudopanthera macularia* **SPECKLED YELLOW** Chetterwood, 5.5 (PAD); Stonebarrow Hill, 20 on 20.5 (JB); Blagdon Copse, by day on 20.5 (MPa); Abbotsbury Castle, by day on 1.6 (MSP)

1912 *Ennomos quercinaria* **AUGUST THORN** Poole, 2 on 18.7 (VG); Wareham, 24.8 (R&MA); Puddletown, 21.8 (HWH); Tolpuddle, 3.9, 6.9 (JuF)

1915 *Ennomos erosaria* **SEPTEMBER THORN** Hurn, 18.7, 24.7 (MJ); Poole, 31.7 (VG)

1922 *Ourapteryx sambucaria* **SWALLOW-TAILED** Walditch, 2.10 (MSP); Shapwick, 12.10, 3 on 14.10 (PAD); Portland Bird Observatory, 27.10 (viaP)

1925 *Apocheima hispidaria* **SMALL BRINDLED BEAUTY** Kingston, 18.2, 2 on 15.3 (PBe); Hurn, 8.3, 13.4 (MJ); Motcombe, 2 on 23.3 (PBu); Minterne Seat Coppice, 14.4 (T. Box)

1927 *Lycia hirtaria* **BRINDLED BEAUTY** Hurn, 2.4, 6.4, 7.4, 8.4, 3 on 9.4, 3 on 15.4, 2 on 22.4, 27.4, 29.4, 7.5 (MJ); Broadway, 5.4 (PH); Lyme Regis, 2 on 9.4, 20.4 (MWa); Kingston, 2 on 12.4, 2 on 13.4, 2 on 14.4 (PBe); Motcombe, 17 on 12.4 (PBu); Alners Gorse, 13.4 (J&DK, NS, PB-J, R&L. Lambert, S. Hatch, D. Paull); Holt Heath, 3 on 13.4 (PAD), 17 on 27.4 (CM, PAD, D. Paull, S. Hatch); Puddletown, 2 on 13.4, 14.4 (HWH); Powerstock Common, 13.4 (LH, MSP, ZR); Boys Wood, 16 on 14.4 (PAD); West Bexington, 14.4, 17.4, 22.4 (RE); Walditch, 14.4 (MSP); Trigon, 2 on 15.4, 2 on 16.4, 20.4, 2 on 28.4 (CM); Chilfrome, 2 on 19.4 22.4, 5.5 (SP); Tolpuddle, 21.4, 3 on 28.4 (JuF); Wareham, 22.4 (R&MA); Gillingham, 22.4 (GRH); Bloxworth Heath, 2 on 23.4 (PAD); Chedington Wood, 25.4 (PAD, PBu); Shaggs, 2 on 29.4 (LH); Bagmore Wood, 3 on 30.4 (MPl); Chickerell, 5.5 (CP); Ashington, 7.5 (JiF)

1932 *Agriopis leucophaearia* **SPRING USHER** Puddletown, 27.1, 31.1 (HWH); West Bexington, 1.2 (RE); Shaggs, 1.2 (LH); Chilfrome, 2.2 (SP);Hurn, 4.2, 2 on 5.2, 10.2, 3 on 12.2, 15.2, 17.2, 20.2 (MJ); Verwood, 10.2 (MWe); Kingston, 13.2, 2 on 18.2 (PBe); East Holme, 6 on 17.2 (JC); Trigon, 20.2, 21.2 (CM)

1933 *Agriopis aurantiaria* **SCARCE UMBER** East Holme, 26.11 (JC)

1939 *Cleora cinctaria* **RINGED CARPET** Hurn, 16.3 (MJ); Holt Heath, 13.4 (PAD), 5 on 27.4 (CM, PAD, D. Paull, S.Hatch); Trigon, 21.4, 6.5, 3 on 12.5 (CM); Verwood, 22.4, 1.5 (CC); Wareham Forest, 8 on 23.4 (PAD); Bloxworth Heath, 8 on 23.4 (PAD); Ferndown, 25.4, 2 on 28.4 (DC); Shaggs, 30.4 (LH, MSP)

1940 *Deileptenia ribeata* **SATIN BEAUTY** Puddletown, 9.7, 23.8, 25.8 (HWH); Chedington Wood, 2 on 14.7 (PAD, PBu), 12 on 3.8 (PAD, PBu, J. McGill, P. Chapman); Powerstock Common, 15.7 (MSP)

1943 *Hypomecis roboraria* **GREAT OAK BEAUTY** Piddles Wood, 9.6 (CM, LdW, PAD, PBu); Chase Wood, 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews)

1944 *Serraca punctinalis* **PALE OAK BEAUTY** Holt Heath, 27.4 (CM, PAD, D. Paull, S. Hatch); Puddletown, 28.4 (HWH); Hurn, 8.5, 13.5, 3 on 17.5, 21.5, 23.5, 3 on 24.5, 2 on 1.6, 6.6, 18.6, 19.6 (MJ); Verwood, 24.5 (MWe), 1.6 (CC); Gillingham, 31.5 (GRH); Alners Gorse, 2.6 (NS, PBu); Motcombe, 3.6 (PBu); Whitesheet, 6 on 3.6 (PAD); Shaggs, 7.6 (MSP); Piddles Wood, 3 on 9.6 (CM, LdW, PAD, PBu); Chase Wood, 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews)

1945 *Cleorodes lichenaria* **BRUSSELS LACE** Shaggs, 19.9 (LH); Chickerell, 22.9 (CP); Middlebere Farm, 7.10 (R. Ward)

1947 *Ectropis bistortata* **ENGRAILED** Kingston, 2.10 (PBe); Shaggs, 9.10 (MSP)

1950 *Paradarisa extersaria* **BRINDLED WHITE-SPOT** Piddles Wood, 3 on 9.6 (CM, LdW, PAD, PBu); Whitesheet, 14.6 (PAD); Chase Wood, 3 on 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews); Hurn, 20.6 (MJ)

1951 *Aethalura punctulata* **GREY BIRCH** Hurn, 11.4, 19.4, 2.5, 7.5 (MJ); Holt Heath, 2 on 13.4 (PAD), 6 on 27.4 (CM, PAD, D. Paull, S. Hatch); Wareham, 15.4, 1.5 (BY); Ferndown, 22.4, 25.4 (DC); Bloxworth Heath, 23.4 (PAD); Wareham Forest, 23.4 (PAD); Snag Valley, 26.5 (CM, PAD, D. Paull, S. Hatch)

1954 *Bupalus piniaria* **BORDERED WHITE** Bloxworth, 9.6 (SB); Stoborough Heath, 2 by day on 9.6 (K. McCabe); Ashington, 10.6, 21.6, 23.6 (JiF); Poole, 10.6 (VG), 3 on 15.6 (PT); Ferndown, 11.6 (DC); Spettisbury, 14.6 (D&JK); Hurn, 17.6, 23.6 (MJ); Wareham Forest, 12.7 (LH, MSP)

1957 *Lomographa bimaculata* **WHITE-PINION SPOTTED** Shaggs, 24.4 (LH); Bagmore Wood, 2 on 30.4, 24.5 (MPl); Nordon, 2 on 1.5 (PAD); Hurn, 8.5 (MJ); Puddletown, 16.5, 18.6 (HWH); Ferndown, 17.5 (DC); Creech Bottom, 5.6 (K. McCabe); Chedington Wood, 8.6 (PAD); Piddles Wood, 9.6 (CM, LdW, PAD, PBu)

1958 *Lomographa temerata* **CLOUDED SILVER** Gillingham, 20.8, 21.8 (GRH)

1964 *Charissa obscurata* **ANNULET** Burton Bradstock, by day on 11.8 (MSP); Lulworth Cove, 24.8 (LH)

1968 *Aspitates ochrearia* **YELLOW BELLE** West Bexington, 22.4, 3.5, 8.5, 12.5, 13.5, 14.5, 15.5, 16.5, 17.5, 18.5, 19.5, 20.5, 21.5, 22.5, 24.5, 26.5, 29.5, 1.6, 5.6, 6.6, 16.8, 18.8, 22.8, 23.8, 24.8, 25.8, 26.8, 29.8, 31.8, 7.9, 16.9 (RE), 31.5 (PHS,RE), 17.8, 27.8, 7.9 (PHS); Swanage, 1.5 (JRC); Tidmoor Range, by day on 25.5 (PHS); Broadway, 7.5 (PH); Chickerell, 17.5, 22.5, 25.8, 5.9 (CP)

1970 *Perconia strigillaria* **GRASS WAVE** Alners Gorse, 7 on 2.6 (NS, PBu); Morden Bog, 5.6 (PAD); Hurn, 7.6 (MJ); Verwood, 9.6 (CC, MWe)

1972 *Agrius convolvuli* **CONVOLVULUS HAWK** Portland Bird Observatory, 2.8, 4.8, 2 on 7.8, 8.8, 22.8, 23.8, 30.8, 1.9, 2.9, 3.9, 3 on 5.9, 6.9 (viaP); West Bexington, 15.8, 31.8, 16.9, 18.9 (RE); Puddletown, 26.8 (HWH); Poole, 6.9 (D. Woodruff); Middlebere Farm, 7.10 (R. Ward)

1973 *Acherontia atropos* **DEATH'S HEAD HAWK** Tolpuddle, 27.6 (per Dorset B C website)

1982 *Hemaris tityus* **NARROW-BORDERED BEE HAWK** Crincombe Bottom, by day on 21.4 (M.Warren); Hod Hill, 2 by day on 22.4 (M.Warren), 7 flying over earthworks on 26.4 (PAD); Hog Hill, 3 by day on 27.4 (MSP), 4 larvae by day on 5.6 (MSP,ZR), 7 larvae on 8.6 (KT, MSP, SB), 2 small larvae on 13.6 (MSP); Folly Hill, 2 by day on 28.4 (MSP); Cowdown Hill, by day on 28.4 (MSP); Coombe Bottom, by day on 5.5 (PAD); Melbury Down, resting on common milkwort on 26.5 (P. Clarke)

1983 *Hemaris fuciformis* **BROAD-BORDERED BEE HAWK** Oakers Wood, by day on 5.5 (MPa), nectaring on rhododendron by day on 26.5 (P. Clarke); Hengistbury Head, 2 by day on 22.5 (MJ); Ferndown, nectaring on verbena on 1.6 (RRC)

1987 *Hyles galii* **BEDSTRAW HAWK** Puddletown, 30.7 (HWH); Portland Bird Observatory, 30.7, 26.8 (viaP)

1990 *Hyles lineata livornica* **STRIPED HAWK** Portland Bird Observatory, 15.6 (viaP); Lytchett Matravers, 16.6 (G. Freeman); West Bexington, 16.6 (RE), 27.8 (PHS); Puddletown, 20.6 (HWH)

1998 *Furcula bifida* **POPLAR KITTEN** West Bexington, 7.4, 8.6, 9.6 (RE); Walditch, 7.5 (MSP); Ashington, 18.5, 26.5 (JiF); Hurn, 24.5, 24.7, 14.8 (MJ); Lyme Regis, 25.5, 26.5 (MWa); Kingston, 5.6 (PBe); Chedington Wood, 8.6 (PAD); Wareham, 23.6 (BY)

2010 *Odontosia carmelita* **SCARCE PROMINENT** Hurn, 13.4, 5 on 15.4, 3 on 17.4, 19.4, 20.4, 3 on 22.4, 23.4 (MJ); Boys Wood, 14.4 (PAD); Verwood, 19.4, 12.5 (MWe), 27.4 (CC); Bloxworth Heath, 13 on 23.4 (PAD); Shaggs, 24.4 (LH, MSP), 25.4 (KT, LH), 25.4 (LH); Holt Heath, 7 on 27.4 (CM, PAD, D. Paull, S. Hatch)

2017 *Clostera pigra* **SMALL CHOCOLATE-TIP** Grange heath, 4 larvae on sallow on 2.9 (I. Cross)

2020 *Diloba caeruleocephala* **FIGURE OF EIGHT** West Bexington, 3.10, 4.10, 7.10, 11.10, 12.10, 13.10, 14.10, 15.10, 17.10, 18.10, 21.10, 23.10, 2 on 25.10, 7 on 26.10, 27.10, 6 on 29.10, 4 on 30.10, 2 on 31.10, 2 on 1.11, 2 on 2.11, 2 on 4.11, 6.11, 7.11 (RE); Kingston, 8.10, 2 on 26.10, 31.10, 7.11 (PBe); Motcombe, 31.10 (PBu)

2027 *Dicallomera fascelina* **DARK TUSSOCK** Marshwood, 24.5 (JB)

2031 *Leucoma salicis* **WHITE SATIN** Wyke Regis, 18.6 (DF); Hurn, 24.6, 25.6, 14.7, 29.7 (MJ); Wareham, 21.7 (BY)

2034 *Lymantria dispar* **GYPSY** Coastal locality, hundreds of larvae on scrubby oak in May

2037 *Miltochrista miniata* **ROSY FOOTMAN** West Bexington, 21.9 (RE)

2038 *Nudaria mundana* **MUSLIN FOOTMAN** Walditch, 12.6 (MSP); Portland Bird Observatory, 13.6 (viaP); West Bexington, 19.7 (RE)

2039 *Atolmis rubricollis* **RED-NECKED FOOTMAN** Verwood, 4.6 (CC), 9.6 (CC,MWe), 12.7 (MWe); Hurn, 4.6, 2 on 8.6 (MJ); Puddletown, 2 on 7.6, 2 on 8.6, 2 on 10.6 (HWH); Chedington Wood, 8.6 (PAD); Kingston, 8.6 (PBe); Piddles Wood, 2 on 9.6 (CM, LdW, PAD, PBu); Ashington, 10.6 (JiF); Wareham Forest, 3 on 11.6 (PAD), 2 on 12.7 (LH,MSP), 17.7 (GRH, LH, MSP); Whitesheet, 14.6 (PAD); Chase Wood, 3 on 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews); Durlston, larva by day on 25.10 (JCl)

2045 *Eilema caniola* **HOARY FOOTMAN** West Bexington, 21.8 (RE)

2049 *Eilema deplana* **BUFF FOOTMAN** East Holme, 1.10 (JC)

2051 *Lithosia quadra* **FOUR-SPOTTED FOOTMAN** Shaggs, 20.6 (LH), male on 2.10, 4 males on 11.10, female on 12.10, female and 4 males on 13.10, 3 males on 14.10, 15.10, male on 17.10 (LH), male on 4.10, male on 8.10 (MSP); Hurn, 22.6, 23.6, 1.7, 11.7, 17.7, 19.7, 14.8, 23.9, 8.10 (MJ); Bloxworth, 23.6 (SB); Puddletown, 2 on 29.6, 12.10, 3 on 14.10, 15.10, 26.10, 31.10 (HWH); Verwood, 29.6, 3.10 (CC), 12.7 (MWe); Walditch, 2 males on 12.7, male on 14.7, male on 3.8, male on 28.9, male on 1.10 (MSP); Broadway, male on 14.7, male on 3.8, 4.8, male on 4.10, male on 16.10 (PH), male on 20.10; Wyke Regis, 20.7, 5.8 (DF); Alners Gorse, 4.8 (NS, PBu); Charmouth, 6.8 (GS); Wyke Wood, 211 on 17.8 (PHS); Preston, 24.8 (RL); Ashington, 2.10 (JiF); Tolpuddle, 12.10 (JuF); East Holme, 13.10 (JC); Merley, 14.10 (D&MG); West Bexington, 14.10 (RE); Durlston, 14.10 (PAD, RRC, A. Page)

2053 *Coscinia cribraria* **SPECKLED FOOTMAN** Dorset Heath, 24.7

2056 *Parasemia plantaginis* **WOOD TIGER** Giant Hill, larva by day on 27.4 (MSP); Lankham Bottom, 50 larvae by day on 27.4, 8.6 (BC); Osmington Mills, by day on 2.6 (BC); Hod Hill, by day on 2.6 (MPa); Fontmell Down, 9.6 (S.Davis); Melbury Down, 2 on 10.6 (PAD)

2058 *Arctia villica britannica* **CREAM-SPOT TIGER** Winterborne Stickland, 17.5 (LdW); Trigon, 24.5

(CM); Gillingham, 24.5, 2.6, 4.6, 5.6, 6.6 (GRH); Piddles Wood, 3 on 25.5 (D&JK, LdW, PAD, PBu, PB-J), 2 on 9.6 (CM, LdW, PAD, PBu); Motcombe, 2 on 31.5 (PBu); Blackdown, 1.6 (T.Box); Hurn, 1.6, 7.6, 8.6 (MJ); Alners Gorse, 3 on 2.6 (NS, PBu); Puddletown, 6.6 (HWH); Bloxworth, 9.6 (SB)

2059 *Diacrisia sannio* **CLOUDED BUFF** Stoborough Heath, 2 by day on 3.6 (K. McCabe); Creech Bottom, 6.6, 2 on 12.6 (K. McCabe); Ferndown, 7.6, 2 on 9.6 (DC); East Holme, 8.6 (JC); Winterborne Stickland, 10.6 (LdW); Slop Bog, 15.6 (I. Cross, P. Jones); Alners Gorse, 2 on 4.8 (PBu)

2061 *Spilosoma luteum* **BUFF ERMINE** Chickerell, 14.10 (CP)

2067 *Euplagia quadripunctaria* **JERSEY TIGER** Portland Bird Observatory, larva by day on 28.4, 19.7 (viaP); Chickerell, 10.7, 28.7, 31.7, 2.8, 3 on 6.8, 7.8, 2 on 8.8, 5 on 9.8, 4 on 10.8, 11.8, 12.8, 21.8, 24.8 (CP); Preston, 15.7, 29.7, 7.8, 2 on 10.8, 27.8 (RL); Bridport, 19.7, 5.8, by day on 9.8, 12.8, 15.8, 21.8, 23.8, by day on 27.8, 28.8 (MB); West Bexington, by day on 19.7, 2 on 20.7, by day on 22.7, 27.7, 28.7, 2 on 29.7, 4 on 30.7, 31.7, 3 on 2.8, 4 on 3.8, 2 on 4.8, 3 on 5.8, 4 on 6.8, 4 on 7.8, 6 on 8.8, 3 on 9.8, 2 on 10.8, 4 on 11.8, 3 on 12.8, 3 on 15.8, 16.8, 17.8, 18.8, 19.8, 2 on 20.8, 7 on 21.8, 22.8, 6 on 24.8, 2 on 25.8, 2 on 26.8, 3 on 27.8, 2 on 28.8, 30.8, 31.8 (RE), 17.8 (PHS); Lyme Regis, 3.8, 24.8 (MWa); Broadway, 3.8, 11.8, 25.8 (PH); Beaminster, 3.8, 23.8 (SP); Walditch, 2 on 4.8, 5 on 5.8, 8 on 9.8, 4 on 11.8, 12.8, 6 on 13.8, 4 on 14.8, 2 on 15.8, 4 on 17.8, 3 on 2.9, 5.9 (MSP); Wyke Regis, 4 on 9.8, 21.8, 23.8, 25.8, 26.8 (DF); Marshwood, 17.8, 25.8 (JB)

2068 *Callimorpha dominula* **SCARLET TIGER** Preston, 8.6, 9.6, 16.6 (RL); Radipole, on the wing by day on 10.6 (A. Taylor); Spettisbury, 5 by day between 10.6 and 15.6 (D&JK); Shapwick, 14.6 (PAD); Hartland Moor, 17.6 (BC); Hurn, by day on 19.6 (MJ); Tolpuddle, 22.6 (JuF); Shaggs, by day on 28.6 (LH, ZR); Sherborne, 2 by day on 29.6 (P.Mackie); Bindon, by day on 29.6 (BC); Delcombe Wood area, by day on 7.7 (MPa)

2076 *Meganola albula* **KENT BLACK ARCHES** Portland Bird Observatory, 9.6 (viaP); Ashington, 12.6 (JiF); Chickerell, 14.6, 2 on 22.6, 26.6, 3 on 11.7, 2 on 14.7, 3 on 15.7, 16.7, 17.7, 2 on 24.7, 2 on 27.7, 28.7 (CP); Shapwick, 14.6 (PAD); Hurn, 15.6, 19.6, 22.6, 12.7, 2 on 14.7 (MJ); West Bexington, 18.6, 19.6, 13.7, 14.7, 15.7, 16.7, 21.7, 4.8, 5.8 (RE); Broadway, 21.6, 29.6, 1.7, 15.7 (PH); Kingcombe Centre, 29.6 (NS); Puddletown, 9.7, 2 on 12.7, 14.7, 2 on 15.7, 16.7, 17.7 (HWH); Wareham Forest, 2 on 12.7 (LH, MSP); Wareham, 13.7 (BY); Spettisbury, 15.7 (D&JK); Broadmayne, 19.7 (PB-J); Lankham Bottom, 2 on 27.7 (LdW, NS, PB-J)

2077 *Nola cucullatella* **SHORT-CLOAKED** Portland Bird Observatory, 9.6 (viaP); Creech Bottom, 13.6 (K. McCabe); Swanage, 14.6, 17.6 (JRC); Chickerell, 19.6, 20.6, 21.6, 18.7 (CP); West Bexington, 23.6, 26.6, 1.7, 6.7, 10.7, 11.7, 12.7, 14.7, 15.7, 16.7, 24.7, 28.7 (RE); Ashington, 30.6 (JiF); Motcombe, 12.7 (PBu); Gillingham, 15.7 (GRH)

2081 *Euxoa tritici* **WHITE-LINE DART** East Holme, 13.7 (JC); Hurn, 5.8 (MJ); Arne, 2 on 6.8, 8.8, 3 on 9.8, 10.8, 4 on 11.8, 3 on 12.8, 13.8, 10 on 15.8, 6 on 17.8 (S.Morgan); Grove Copse, 21.8 (MJ); Ashington, 10.9 (JiF)

2082 *Euxoa nigricans* **GARDEN DART** Ashington, 13.7 (JiF); Portland Bird Observatory, 16.8 (viaP)

2084 *Agrotis cinerea* **LIGHT FEATHERED RUSTIC** Gillingham, 29.4 (GRH); Winterborne Stickland, 3.5 (LdW); Swanage, 5.5, 17.5 (PE); Portland Bird Observatory, 6.5 (viaP); Shaggs, 7.5 (LH); Spettisbury, 24.5 (D&JK)

2085 *Agrotis vestigialis* **ARCHER'S DART** Arne, 9.8, 2 on 15.8, 16.8, 2 on 17.8 (S. Morgan); Wareham, 24.8 (R&MA)

2089 *Agrotis exclamationis* **HEART AND DART** Portland Bird Observatory, 4.11 (viaP)

2090 *Agrotis trux lunigera* **CRESCENT DART** West Bexington, 3.6, 16.6, 6.7, 7.7, 20.7, 2.8, 7.8, 19.8, 2 on 20.8 (RE); Portland Bird Observatory, 5.6 (viaP); Puddletown, 25.8 (HWH)

2093 *Agrotis ripae* **SAND DART** Studland, 2 on 9.5 (A.McCaffery,D.Sheldon)

2094 *Agrotis crassa* **GREAT DART** Portland Bird Observatory, 24.8 (viaP)

2098 *Axylia putris* **FLAME** West Bexington, 21.9 (RE); Walditch, 13.10 (MSP)

2110.1 *Noctua janthina* **LANGMAID'S YELLOW UNDERWING** Portland Bird Observatory, 24.7 (viaP)

2112 *Noctua interjecta caliginosa* **LEAST YELLOW UNDERWING** Portland Bird Observatory, 30.6 (viaP); Walditch, 15.7 (MSP); West Bexington, 26.7, 29.7, 4.8, 9.8, 17.8, 18.8, 27.8 (RE); Lankham Bottom, 2 on 27.7 (LdW, NS, PB-J); Cerne Abbas, 3.8 (NS); Chickerell, 3.8, 11.8 (CP); Holt Lodge Farm, 5.8 (PAD); Wareham, 9.8 (BY); Arne, 10.8 (S. Morgan); Winterborne Stickland, 11.8 (LdW); Wimborne, 15.8, 22.8 (BS); Kingston, 16.8 (PBe); Gillingham, 21.8, 22.8, 4 on 23.8, 2 on 26.8 (GRH); Motcombe, 22.8 (PBu); Beaminster, 2 on 6.9 (SP)

2117 *Eugnorisma glareosa* **AUTUMNAL RUSTIC** Hurn, 13.9, 16.9, 18.9, 30.9, 1.10 (MJ); Shaggs, 20.9, 2.10 (LH); Wareham, 4.10 (R&MA); Middlebere Farm, 6.10 (R. Ward); Walditch, 9.10 (MSP); East Holme, 10.10, 2 on 13.10 (JC); Portland Bird Observatory, 11.10 (viaP)

2130 *Xestia baja* Dotted Clay Hurn, 15.8, 2.9, 13.9 (MJ)

2132 *Xestia castanea* **NEGLECTED RUSTIC** Puddletown, 16.9 (HWH); Highcliffe, 23.9 (DL); Ashington, 10.9 (JiF); Verwood, 3.10 (CC); Tolpuddle, 12.10, 13.10 (JuF)

2135 *Xestia agathina* **HEATH RUSTIC** Hurn, 13.9, 15.9, 2 on 19.9, 2 on 20.9 (MJ); East Holme, 19.9 (JC); Great Ovens Hill, 2 on 8.10 (PAD)

2136 *Naenia typica* **GOTHIC** Hurn, 17.7 (MJ); Broadway, 19.7 (PH); Chickerell, 24.7, 2.8, 3.8, 10.8 (CP)

2137 *Eurois occulta* **GREAT BROCADE** Christchurch, 13.8.2006 (P. Hugo); Bournemouth, retrieved from a hanging basket on 23.8 (viaS); Kingston, 24.8 (PBe); Gillingham, 24.8 (GRH); Spettisbury, 25.8 (D&JK)

2142 *Anarta myrtilli* **BEAUTIFUL YELLOW UNDERWING** Hurn, 21.6, 25.8 (MJ); Wareham Forest, 12.7, 12.7 (LH, MSP), 24.7 (MSP, PAD, J. Hughes); Arne, 12.8, 3 on 15.8 (S.Morgan)

2145 *Discestra trifolii* **NUTMEG** Hurn, 9.4, 7.6, 8.6 (MJ); Kingston, 13.4, 24.5 (PBe); Portland Bird Observatory, 17.4 (viaP); Trigon, 22.4, 12.5 (CM); Gillingham, 26.4 (GRH); Dorchester, 28.4 (JD); West Bexington, 2.6, 4.6, 5.6, 6.6, 23.6, 2.8, 3.8, 7.8, 9.8, 11.8, 19.8, 21.8, 23.8 (RE), 7.9 (PHS); Fortuneswell, 14.6 (EC); Ashington, 30.6, 13.7, 15.7 (JiF); Wimborne, 2 on 18.7, 30.7 (BS); Wareham, 21.7, 21.8 (BY); Arne, 10.8 (S. Morgan); Corfe Mullen, 10.8 (R&L. Lambert); Poole, 21.8, 23.8, 25.8 (VG)

2156 *Lacanobia contigua* **BEAUTIFUL BROCADE** Verwood, 2.6 (MWe); Poole, 7.6 (VG); Ashington, 12.6, 21.6, 13.7, 15.7 (JiF)

2158 *Lacanobia thalassina* **PALE-SHOULDERED BROCADE** Verwood, 19.5 (CC); Shaggs, 22.5 (LH),

7.6 (MSP), 11.6 (LH, SB), 14.6 (KT); Bagmore Wood, 31.5 (MPl); Alners Gorse, 4 on 2.6 (NS, PBu); Charminster, 4 on 4.6 (NS); Wareham, 6.6 (BY); Alweston, 6.6 (NS); Evershot, 12.6 (NS); Slop Bog, 2 on 15.6 (I. Cross, P. Jones); Chedington Wood, 8.6 (PAD); Chase Wood, 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews); Mosterton, 18.6 (NS)

2159 *Lacanobia suasa* **DOG'S TOOTH** Wareham, 22.5 (R&MA), 2 on 21.8 (BY); Hengistbury Head, 9 on 1.8 (MJ)

2163 *Ceramica pisi* **BROOM** Winterborne Stickland, 17.5, 7.6 (LdW); West Bexington, 31.5 (PHS, RE); 4.6, 11.7, 12.7 (RE); Verwood, 9.6 (CC, MWe); Puddletown, 10.6 (HWH); Shaggs, 13.6 (MSP)

2164 *Hecatera bicolorata* **BROAD-BARRED WHITE** Dorchester, 2.6, 2 on 3.6, 7.6, 8.6, 16.6, 30.6 (JD); Wareham, 8.6 (BY), 29.6 (R&MA); West Bexington, 11.6, 16.6 (RE); Swanage, 11.6, 11.7 (JRC); Broadway, 22.6 (PH); Broadcroft Quarry, 22.6 (EC, GRH, NS, PBu); Ashington, 30.6 (JiF); Poole, 10.7, 15.7 (VG); Portland Bird Observatory, 12.7 (viaP)

2166 *Hadena rivularis* **CAMPION** Verwood, 1.6 (CC); Portland Bird Observatory, 4.6 (viaP); Hurn, 17.7 (MJ); Tolpuddle, 3.8 (JuF)

2167 *Hadena perplexa* **TAWNY SHEARS** West Bexington, 8.4, 9.4, 5 on 15.4, 17.4, 18.4, 20.4, 2 on 21.4, 6 on 22.4, 2 on 24.4, 3 on 25.4, 2 on 26.4, 2 on 28.4, 29.4, 2 on 3.5, 4.5, 2 on 5.5, 12.5, 17.5, 23.5, 24.5, 1.6, 2.6, 18.6, 19.6, 22.6, 23.6, 24.6, 26.6, 29.6, 4.7, 6.7, 2 on 7.7, 9.7, 3 on 14.7, 4 on 15.7, 16.7, 18.7, 21.7, 1.8, 6.8, 7.8, 21.8, 24.8, 25.8, 27.8, 6 on 28.8, 2 on 30.8, 31.8, 7.9, 19.9, 2 on 21.9 (RE), 3.5 (PHS, RE), 2.9 (M.Sterling), 7.9 (PHS); Shaggs, 11.4 (LH, ZR), 23.4 (LH); Spettisbury, 26.4 (D&JK); Portland Bird Observatory, 3.5 (viaP); Motcombe, 20.5 (PBu); Kingston, 12.7, 18.7 (PBe); Durlston, 31.10 (MSP,S.Clancy)

2169 *Hadena luteago barrettii* **BARRETT'S MARBLED CORONET** Eype's Mouth, 2 on 14.6 (MSP)

2171 *Hadena confusa* **MARBLED CORONET** Shapwick, 18.6 (PAD)

2172 *Hadena albimacula* **WHITE SPOT** Shaggs, 5.5 (LH), 16.5 (MSP)

2190 *Orthosia gothica* **HEBREW CHARACTER** f. *obsoleta* Poole, on 19.4 (VG); Milton-on-Stour, 23.10 (J. Burge)

2177 *Tholera cespitis* **HEDGE RUSTIC** East Holme, 30.8 (JC); Ashington, 1.9 (JiF); Hurn, 2.9 (MJ); Puddletown, 4.9, 12 on 7.9, 12 on 8.9, 11 on 22.9 (HWH); Walditch, 6.9 (MSP); Kingcombe, 8.9 (PHS); Durlston, 15.9 (DCP); Lankham Bottom, 17 on 21.9 (LdW, NS, PB-J); West Bexington, 22.9 (RE)

2178 *Tholera decimalis* **FEATHERED GOTHIC** Winterborne Stickland, 30.8 (LdW); Motcombe, 30.8 (PBu); Ashington, 5.9, 10.9 (JiF); Puddletown, 6.9, 3 on 7.9, 2 on 8.9, 11.9 (HWH); West Bexington, 7.9 (PHS); Kingcombe, 7.9, 8.9 (PHS); Chase Wood, 7 on 8.9 (CC, J&DK, PBu, PB-J, P. Smeeth); Hurn, 9.9, 17.9 (MJ); East Holme, 9.9 (JC); Lankham Bottom, 6 on 21.9 (LdW, NS, PB-J)

2183 *Orthosia miniosa* **BLOSSOM UNDERWING** Puddletown, 8.4, 13.4, 25.4 (HWH); Kingston, 10.4, 2 on 12.4, 4 on 13.4 (PBe); Alners Gorse, 2 on 12.4 (PAD), 15 on 13.4 (J&DK, NS, PB-J, R&L. Lambert, S. Hatch, D. Paull), larva by day on 2.6 (NS, PBu); West Bexington, 13.4 (RE)

2184 *Orthosia opima* **NORTHERN DRAB** Shapwick, 15.3 (PAD); Fontmell Down, at rest near grazed hawthorn 9pm on 11.4 (GRH, JiF, LH, PAD, PBe); Puddletown, 12.4 (HWH); Kingston, 12.4 (PBe); Gillingham, 16.4, 17.4 (GRH); West Bexington, 28.4 (RE)

2185 *Orthosia populeti* **LEAD-COLOURED DRAB** Hurn, 14.3, 16.3, 24.3, 27.3, 7.4, 2 on 8.4, 9.4 (MJ); Kingston, 25.3 (PBe); Motcombe, 9.4 (PBu); Boys Wood, 11 on 14.4 (PAD)

2187 *Orthosia cerasi* **COMMON QUAKER** Broadway, 7.11 (PH)

2191 *Mythimna turca* **DOUBLE LINE** Evershot, 12.6 (NS)

2192 *Mythimna conigera* **BROWN-LINE BRIGHT EYE** Alweston, 6.6 (NS); Fortuneswell, 2 on 12.6, 17.6 (EC); Portland Bird Observatory, 14.6 (viaP); Broadcroft Quarry, 2 on 22.6 (EC, GRH, NS, PBu); Shaftesbury, 22.6 (WGS)

2197 *Mythimna straminea* **SOUTHERN WAINSCOT** Portland Bird Observatory, 31.7, 2.9, 4.9 (viaP); West Bexington, 3.8, 8.8, 11.8 (RE); Southwell, 28.8 (viaP); Broadway, 7.9 (PH)

2200 *Mythimna favicolor* **MATHEW'S WAINSCOT** Ashington, 18.5 (JiF)

2202 *Mythimna l-album* **L-ALBUM WAINSCOT** Chilfrome, 2 on 23.5, 31.5, 16 on 10.6, 2 on 14.6, 12 on 6.6 (SP); East Holme, 8.6 (JC); Dorchester, 8.6 (JD); Puddletown, 10.6, 12.6, 2 on 16.9, 21.9, 22.9, 8.10, 11.10, 14.10, 31.10 (HWH); Lankham Bottom, 3 on 21.9 (LdW, NS, PB-J)

2203 *Mythimna unipuncta* **WHITE-SPECK** West Bexington, 22.7, 25.9, 3 on 27.10, 28.10, 29.10, 2 on 31.10, 2 on 21.11, 24.11, 27.11, 29.11 (RE); Ashington, 4.8, 1.11 (JiF); Portland Bird Observatory, 24.8, 14.10, 21.10, 23.10, 24.10, 28.10, 3 on 29.10, 4 on 30.10, 31.10, 3 on 1.11, 3 on 2.11, 3.11, 3 on 4.11, 2 on 8.11, 12.11, 6 on 27.11, 5 on 28.11, 30.11 (viaP); Shaggs, 15.10 (LH); Preston, 25.10, 26.10, 28.10 (RL); Durlston, 27.10 (SMG), 2 at ivy blossom on 31.10 (MSP, S. Clancy), 1.11 (LH,S.Clancy); Puddletown, 31.10, 1.11, 3.11 (HWH)

2204 *Mythimna obsoleta* **OBSCURE WAINSCOT** Charmouth, 18.5, 7.6(2), 17.6 (GS); Milton-on-Stour, 18.5 (J. Burge); Broadway, 7.6, 8.6 (PH)

2205 *Mythimna comma* **SHOULDER-STRIPED WAINSCOT** Puddletown, 30.9 (HWH); Kingston, 22.10 (PBe)

2206 *Mythimna putrescens* **DEVONSHIRE WAINSCOT** Portland Bird Observatory, 13.7 (viaP)

2209 *Senta flammea* **FLAME WAINSCOT** Snag Valley, 6.5 (PAD)

2211 *Cucullia absinthii* **WORMWOOD** Portland Bird Observatory, 5.8 (viaP)

2214 *Cucullia chamomillae* **CHAMOMILE SHARK** West Bexington, 9.4, 12.4, 11.5, 13.5 (RE); Portland Bird Observatory, 12.4 (viaP); Puddletown, 28.4 (HWH); Chickerell, 28.4 (CP); Swanage, 8.5 (JRC)

2221 *Cucullia verbasci* **MULLEIN** Shaftesbury, several larvae feeding on delphinium in a public garden on 11.6 (GRH)

2225 *Brachylomia viminalis* **MINOR SHOULDER-KNOT** Alners Gorse, 15.6 (PBu); Kingston, 19.6, 22.6, 14.7 (PBe); Ashington, 21.6, 15.7 (JiF); Ryewater Nursery, 9 on 21.6 (NS); Hurn, 25.6, 26.6 (MJ); Motcombe, 2 on 4.7 (PBu); Hurdley Moor Farm, 2 on 6.7 (NS); Chedington Wood, 14.7 (PAD, PBu); Buckland Newton, 15.7 (NS); Powerstock Common, 15.7 (MSP)

2226 *Leucochlaena oditis* **BEAUTIFUL GOTHIC** Portland Bird Observatory, 12.8 (viaP); Swanage, 24.8, 26.8, 27.8, 28.8, 12.9, 23.9 (JRC); Portland, 3.10 (PH); Durlston, 6 on 14.10 (PAD, RRC, A. Page), 2 on 27.10 (SMG), 31.10 (MSP, S. Clancy)

2227 *Brachionycha sphinx* **SPRAWLER** Spettisbury, 11.11 (D&JK); West Bexington, 16.11, 22.11, 2 on 24.11, 2 on 25.11, 26.11, 3.12 (RE); Kingston, 2 on 21.11 (PBe)

2229 *Dasypolia templi* **BRINDLED OCHRE** Durlston, 14.10 (PAD, RRC, A. Page)

2230 *Aporophyla australis* pascuea **FEATHERED BRINDLE** West Bexington, 16.8 (RE); West

Bexington, 7.9 (PHS, RE), 28.9 (PHS), 16.9, 17.9, 18.9, 19.9, 20.9, 21.9, 22.9, 23.9, 24.9, 25.9, 26.9, 27.9, 28.9, 29.9, 30.9, 1.10, 2.10, 3.10, 4.10, 5.10, 6.10, 7.10, 8.10, 9.10, 10.10, 11.10, 13.10, 14.10 (RE); Durlston, 15.9 (DCP), 5 on 14.10 (PAD, RRC, A. Page); Burton Beach, 5.10 (OW); Walditch, 6.10 (MSP); Southwell, 13.10 (PH)

2231 *Aporophyla lutulenta* **DEEP-BROWN DART** Hurn, 28.9, 5.10 (MJ); East Holme, 1.10 (JC); Ashington, 2.10 (JiF); Shapwick, 2.10, 8.10 (PAD); Shaggs, 8.10 (MSP); Portland Bird Observatory, 9.10 (viaP); Durlston, 25.10 (JCl)

2235 *Lithophane semibrunnea* **TAWNY PINION** Portland Bird Observatory, 2.2 (viaP); Puddletown, 2 on 15.3, 22.3, 10.4, 13.4, 2 on 19.4, 20.4, 22.4, 24.4, 3.5 (HWH); Dorchester, 24.3 (JD); West Bexington, 8.4, 29.4, 2.10 (RE); Motcombe, 9.4 (PBu); Shaggs, 9.4, 17.4 (LH); Wyke Wood, 14.4 (PHS); Kingston, 20.4 (PBe); Lyme Regis, 27.10 (OW)

2241 *Xylena vetusta* **RED SWORD-GRASS** Kingston, 27.3 (PBe); Lyme Regis, 5.4 (MWa); Bloxworth Heath, 10.4, 23.4 (PAD); Alners Gorse, 12.4 (PAD), 13.4 (J&DK, NS, PB-J, R&L. Lambert, S. Hatch, D. Paull); Holt Heath, 13.4 (PAD); Gillingham, 15.4 (GRH); Studland, 23.5 (A. McCaffery, D. Sheldon)

2246.1 *Dryobota labecula* **OAK RUSTIC** Durlston, 14.10 (PAD, RRC, A. Page), 20.10 (PE), female on 25.10 (JCl), 27.10 (SMG), 2 on 31.10 (MSP, S. Clancy), 4 on 1.11 (LH, S. Clancy, J. Platts, A. Jenkins), 2 on 2.11 (J. Scanes, RRC), 2 on 3.11 (PE); Highcliffe Castle, 5 on 3.11 (PAD,RRC)

2251 *Trigonophora flammea* **FLAME BROCADE** Durlston, 14.10 (PAD, RRC, A. Page); Preston, 26.10 (RL); Broadway, 27.10 (PH); Portland Bird Observatory, 30.10 (viaP)

2252 *Polymixis flavicincta* **LARGE RANUNCULUS** Walditch, 20.9 (MSP); Bridport, 14.10, 22.10 (MB); Milton-on-Stour, 16.10 (J. Burge)

2255 *Eumichtis lichenea lichenea* **FEATHERED RANUNCULUS** Wareham, 11.9, 5 on 21.9, 8 on 27.9, 4 on 4.10, 18.10 ((R&MA); Broadmayne, 25.9, 27.9, 2 on 28.9, 29.9, 1.10, 2 on 3.10, 6.10, 4 on 8.10, 11.10, 4 on 14.10, 7 on 15.10, 8 on 16.10, 5.11 (PB-J); Dorchester, 2.10, 7.10 (JD); East Holme, 10.10, 13.10 (JC); Middlebere Farm, 2 on 11.10 (R. Ward); Puddletown, 4 on 15.10, 2 on 16.10, 31.10 (HWH)

2260 *Conistra rubiginea* **DOTTED CHESTNUT** Preston, 19.2 (RL); Broadway, 20.2, 22.2 (PH); Shaggs, 6.3, 14.3, 2 on 14.3, 27.3, 28.3, 14.4, 15.4 (LH); Puddletown, 6.3, 14.3, 4.4, 10.4, 11.4, 13.4 (HWH); Portland Bird Observatory, 13.3 (viaP); Hurn, 27.3, 8.4, 9.4; Nordon, 1.4, 2 on 8.4 (PAD); West Bexington, 9.4, 14.4, 15.4 (RE); Holt Heath, 13.4 (PAD); Alweston, 15.4 (NS)

2264.1 *Agrochola haematidea* **SOUTHERN CHESTNUT** Canford Heath, null record on 6.10 (PAD); Great Ovens Hill, null record on 8.10 (PAD); Verwood, 5 recorded before 7.30pm on 8.10 (CC); Hurn, 8.10, 14.10, 31.10 (MJ); Motcombe, 14.10 (PBu)

2265 *Agrochola helvola* **FLOUNCED CHESTNUT** Hurn, 29.9 (MJ); Puddletown, 11.10 (HWH)

2266 *Agrochola litura* **BROWN-SPOT PINION** Hurn, 5.10 (MJ); Shapwick, 8.10 (PAD); Motcombe, 4 on 12.10 (PBu)

2268 *Parastichtis suspecta* **SUSPECTED** Shaggs, 28.6 (LH, ZR); Ashington, 30.6 (JiF); Wareham Forest, 17.7 (GRH, LH, MSP)

2271 *Xanthia citrago* **ORANGE SALLOW** Puddletown, 7.10 (HWH); Shapwick, 8.10 (PAD)

2275 *Xanthia gilvago* **DUSKY-LEMON SALLOW** West Bexington, 2.10 (RE)

2276 *Xanthia ocellaris* **PALE-LEMON SALLOW** Broadway, 8.10 (PH)

2277 *Moma alpium* **SCARCE MERVEILLE DU JOUR** Verwood, 17.5, 24.5 (MWe), 25.5 (CC), 1.6, 7.6 (CC, MWe), 9.6 (ZR)

2280 *Acronicta leporina* **MILLER** Poole, 1.6, 2 on 10.6, 4.7 (VG); Hurn, 3.6, 8.6, 2 on 23.6, 2.7 (MJ); Charminster, 2 on 4.6 (NS); Swanage, 6.6 (JRC); Kingston, 8.6 (PBe); Maiden Newton, 11.6 (NS); Creech Bottom, 14.6 (K. McCabe); Chase Wood, 3 on 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews); Chickerell, 20.6, 21.6 (CP); Beacon Hill, 12.7 (BS); Wareham Forest, 12.7 (LH, MSP); Trigon, 24.7 (CM)

2289 *Acronicta rumicis* **KNOTGRASS** Bridport, larva on willow on 14.10 (MB)

2290 *Simyra albovenosa* **REED DAGGER** Hengistbury Head, female on 1.8 (MJ)

2300 Mormo maura **OLD LADY** Poole, 4.8, 15.8 (VG); Grove Copse, 21.8 (MJ); East Holme, 21.8, 9.9 (JC); Chickerell, 29.8 (CP); Broadway, 3.9 (PH); Merley, 5.9 (D&MG); Puddletown, 5.9 (HWH); Swanage, 10.9 (JRC); Portland Bird Observatory, 10.9 (viaP)

2301 *Dypterygia scabriuscula* **BIRD'S WING** Hurn, 17.5, 25.5, 29.5, 2 on 2.7, 9.7, 10.7, 24.7 (MJ); Shaggs, 5.6, 27.6 (LH), 19.6 (MSP); Wareham, 3 on 16.6, 23.6, 6.7 (BY), 29.6, 14.7, 3.8 (R&MA); Upton Heath, 19.6 (S. Davis); Puddletown, 23.6, 12.7, 21.7 (HWH); Swanage, 7.7 (JRC); East Holme, 7.7 (JC); Highcliffe, 8.7 (DL); Wareham Forest, 12.7 (LH, MSP), 17.7 (GRH, LH, MSP); Ashington, 13.7 (JiF); Verwood, 14.7 (CC); Poole, 15.7 (VG); Hengistbury Head, 1.8 (MJ)

2311 *Ipimorpha retusa* **DOUBLE KIDNEY** Hurn, 17.7 (MJ); Alners Gorse, 3 on 4.8 (PBu)

2312 *Ipimorpha subtusa* **OLIVE** Hurn, 10.7, 12.7, 13.7, 4.8 (MJ); Hengistbury Head, 1.8 (MJ); Alners Gorse, 2 on 4.8 (NS, PBu); Motcombe, 5.8 (PBu)

2313 *Enargia paleacea* **ANGLE-STRIPED SALLOW** West Bexington, 24.8 (RE)

2314 *Parastichtis ypsillon* **DINGY SHEARS** Swanage, 11.6 (PE); Dorchester, 18.6 (JD); Spettisbury, 25.6, 30.6 (D&JK); Puddletown, 12.7 (HWH); East Holme, 13.7 (JC); Walditch, 14.7 (MSP)

2319 *Cosmia pyralina* **LUNAR-SPOTTED PINION** Motcombe, 27 on 17.6 (PBu); Ryewater Nursery, 5 on 21.6 (NS); Kingston, 14.7, 18.7 (PBe); Chedington Wood, 5 on 14.7 (PAD, PBu); Hurn, 19.7 (MJ)

2321 *Apamea monoglypha* **DARK ARCHES** Shaggs, 20.9 (LH); West Bexington, 2.10 (RE)

2323 *Apamea sublustris* **REDDISH LIGHT ARCHES** Swanage, 6.6 (PE)

2327 *Apamea epomidion* **CLOUDED BRINDLE** Motcombe, 3 on 1.6 (PBu); Alners Gorse, 2.6 (NS, PBu); Chedington Wood, 5 on 8.6 (PAD), 4 on 14.7 (PAD, PBu); West Bexington, 14.6, 19.6, 20.6 (RE); Chase Wood, 6 on 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews); Mosterton, 2 on 18.6 (NS); Kingston, 19.6 (PBe); Walditch, 19.6 (MSP); Swanage, 20.6 (PE); Powerstock Common, 15.7 (MSP)

2331 *Apamea unanimis* **SMALL CLOUDED BRINDLE** Spettisbury, 18.5, 8.6 (D&JK); Puddletown, 2.6 (HWH); Gillingham, 6.6 (GRH); West Bexington, 1.7 (RE); Hurn, 4.7, 9.7, 13.7, 14.7 (MJ)

2333 *Apamea anceps* **LARGE NUTMEG** Chilfrome, 10.6 (SP)

2334 *Apamea sordens* **RUSTIC SHOULDER-KNOT** Dorchester, 28.4, 1.5, 7.5, 16.5, 21.5, 22.5, 2.6, 8.6 (JD); Fortuneswell, 30.4 (EC); West Bexington, 2.5, 5.5, 13.5, 16.5, 17.5, 21.5, 23.5, 3.6, 4.6, 8.6 (RE); Bagmore Wood, 6.5 (MPl); Spettisbury, 10.5, 21.5, 22.5, 24.5 (D&JK); Motcombe, 2 on 15.5 (PBu);

Shaggs, 17.5 (LH); Tolpuddle, 19.5 (JuF); Broadmayne, 20.5, 2.6 (PB-J); Chilfrome, 23.5 (SP); Tidmoor Range, 3.6 (PHS); Walditch, 7.6 (MSP); Ashington, 8.6 (JiF)

2335 *Apamea scolopacina* **SLENDER BRINDLE** Puddletown, 2.7, 11.7, 12.7 (HWH); Verwood, 6.7 (CC); Hurdley Moor Farm, 4 on 6.7 (NS); Bagmore Wood, 12.7 (MPl); Chedington Wood, 3 on 14.7 (PAD, PBu), 4 on 3.8 (PAD, PBu, J. McGill, P. Chapman); Powerstock Common, 15.7 (MSP); Wareham Forest, 3 on 17.7 (GRH, LH, MSP), 24.7 (MSP, PAD, J. Hughes); Walditch, 17.7, 3.8 (MSP); Shaggs, 1.8 (LH); Portland Bird Observatory, 10.8 (viaP)

2336 *Apamea ophiogramma* **DOUBLE-LOBED** West Bexington, 16.6, 14.7, 22.8 (RE); Ashington, 23.6 (JiF); Puddletown, 29.6, 4.7, 2 on 12.7, 13.7, 15.7, 19.7, 5.8 (HWH); Broadway, 12.7 (PH); Wareham, 14.7 (BY); Hurn, 14.7, 17.7 (MJ); Cerne Abbas, 2 on 3.8 (NS)

2342 *Mesoligia literosa* **ROSY MINOR** Ferndown, 9.6 (DC); West Bexington, 23.6, 19.7, 20.7, 11.8 (RE); Portland Bird Observatory, 2.7 (viaP); Lankham Bottom, 27.7 (LdW, NS, PB-J); Hengistbury Head, 2 on 1.8 (MJ)

2346 *Photedes morrisii morrisii* **MORRIS'S WAINSCOT** Black Ven, 6 on 23.6 (SMG)

2349 *Photedes fluxa* **MERE WAINSCOT** Powerstock Common, 15.7 (MSP)

2358 *Amphipoea fucosa paludis* **SALTERN EAR** Broadway, 14.7, 4.8 (PH); Hengistbury Head, 6 on 1.8 (MJ); Shaggs, 2.8 (LH); Arne, 4.8, 6.8 (S.Morgan); Highcliffe, 5.8 (DL); Walditch, 5.8 (MSP); Portland Bird Observatory, 6.8 (viaP)

2360 Amphipoea oculea **EAR** Hurn, 1.7, 2.7, 9.7, 4 on 12.7, 6 on 14.7, 3 on 24.7, 5 on 30.7, 6 on 1.8, 5 on 5.8, 14.8, 20.8 (MJ); Ashington, 13.7, 15.7, 28.7, 4.8, 7.8, 1.9 (JiF); Lankham Bottom, 27.7 (LdW, NS, PB-J); Holt Lodge Farm, 5.8 (PAD)

2368 *Celaena leucostigma* **CRESCENT** Broadway, 12.7 (PH); Portland Bird Observatory, 8.8 (viaP)

2369 *Nonagria typhae* **BULRUSH WAINSCOT** West Bexington, 6.7, 31.7, 4.8, 5.8, 6.8, 10.8, 12.8, 19.8 (RE); Motcombe, 2 on 12.7 (PBu); Ashington, 15.7, 7.8 (JiF); Puddletown, 16.7, 19.7 (HWH); Portland Bird Observatory, 7.8 (viaP)

2370 *Archanara geminipuncta* **TWIN-SPOTTED WAINSCOT** West Bexington, 15.7, 21.7, 28.7, 12.8 (RE)

2371 *Archanara dissoluta* **BROWN-VEINED WAINSCOT** West Bexington, 11.7, 12.7, 5.8, 7.8, 12.8, 22.8 (RE)

2373 *Archanara sparganii* **WEBB'S WAINSCOT** Wareham Forest, 17.7 (GRH,LH,MSP); Shaggs, 1.8 (LH); Merley, 3.8 (D&MG); Winterborne Stickland, 15.8, 16.8 (LdW)

2376 *Sedina buettneri* **BLAIR'S WAINSCOT** Ringstead Bay, male on 14.10 (R. Bell)

2377 *Arenostola phragmitidis* **FEN WAINSCOT** Eype's Mouth, 14.6 (MSP); Black Ven, 23.6 (SMG); West Bexington, 7.7, 20.7, 22.7 (RE)

2387.1 *Platyperigea kadenii* **CLANCY'S RUSTIC** Puddletown, 10.6, 7.10, 10.10, 26.10 (HWH); Winterborne Stickland, 12.6 (LdW); Hurn, 22.6 (MJ); Wareham, 23.6, 2 on 6.7, 21.9, 29.9 (BY); West Bexington, 2 on 29.6, 6.7, 14.7, 15.7, 20.9, 23.9, 25.9, 2 on 2.10, 2 on 3.10, 5.10, 12.10, 14.10, 2 on 15.10, 1.11, 13.11 (RE); Preston, 3.9, 7.9, 24.10, 26.10, 31.10 (RL); Wyke Regis, 1.10 (DF); Dorchester, 2.10 (JD); Broadway, 7.10, 8.10, 12.10, 2 on 13.10, 14.10, 15.10 (PH); Portland Bird Observatory, 3 on 8.10, 13.10 (viaP); Lyme Regis, 9.10 (OW); Shapwick, 14.10 (PAD); Swanage, 15.10 (JRC); Spettisbury, 16.10 (D&JK); Christchurch, 24.10 (P.Hugo)

2391 *Chilodes maritimus* **SILKY WAINSCOT** Ashington, 13.7 (JiF); West Bexington, 9.8 (RE)

2392.1 *Athetis hospes* **PORTER'S RUSTIC** West Bexington, 4.8, 5.8, 14.8 (RE); Puddletown, 4.8, 5.8 (HWH); Portland Bird Observatory, 7.8, 10.8 (viaP)

2394 *Stilbia anomala* **ANOMALOUS** Wareham, 1.9 (BY); Puddletown, 10.9 (HWH)

2396 *Elaphria venustula* **ROSY MARBLED** Hurn, 17.5, 25.5, 6.6, 7.6 (MJ); Verwood, 25.5 (CC), 7.6, 9.6 (CC, MWe), 12.7 (MWe); Whitesheet, 3.6 (PAD); Creech Bottom, 7.6 (K. McCabe); Shapwick, 9.6 (PAD); Wareham Forest, 11.6 (PAD); Chase Wood, 4 on 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews)

2397 *Panemeria tenebrata* **SMALL YELLOW UNDERWING** Shapwick, 10 in a field containing common mouse-ear on 5.5 (PAD); Chetterwood, 5.5 (PAD); Cheselbourne, by day on 15.5 (I. Cross); Badbury Rings, by day on 20.5 (D&MG)

2399 *Pyrrhia umbra* **BORDERED SALLOW** West Bexington, 21.5, 4.6, 14.6 (RE); Portland Bird Observatory, 4.6 (viaP); Fortuneswell, 10.6, 2 on 12.6 (EC); Broadway, 18.6 (PH); Broadcroft Quarry, 2 on 22.6 (EC, GRH, NS, PBu); Walditch, 16.7 (MSP)

2400 *Helicoverpa armigera* **SCARCE BORDERED STRAW** Puddletown, 21.6, 30.9 (HWH); West Bexington, 2.10, 6.10, 12.10 (RE); Beaminster, 3.10 (SP); Portland Bird Observatory, 4.10, 9.10, 1.11 (viaP); Charmouth, 4.10(2) (GS);

2403 *Heliothis peltigera* **BORDERED STRAW** Wyke Regis, 18.6 (DF); West Bexington, 18.6, 24.6 (RE); Charmouth, 19.6 (GS); Broadway, 20.6 (PH)

2410 *Protodeltote pygarga* **MARBLED WHITE SPOT** Shaggs, 11.10 (LH)

2418 *Earias clorana* **CREAM-BORDERED GREEN PEA** Shaggs, 17.5, 25.5, 2 on 5.6, 20.6 (LH); Broadway, 24.5, 3 on 8.6, 9.6, 2 on 21.6 (PH); Wareham, 31.5 (BY and R&MA); West Bexington, 3 on 2.6, 2 on 3.6, 2 on 4.6, 2 on 5.6, 7.6, 4 on 8.6, 3 on 11.6, 13.6, 14.6, 2 on 21.6, 22.6, 24.6, 3.8, 15.8, 19.8, 21.8 (RE); Wyke Regis, 2.6 (DF); Tidmoor Range, 3.6 (PHS); Creech Bottom, 3 on 7.6, 8.6, 9.6, 13.6, 14.6 (K.McCabe); Puddletown, 2 on 8.6, 9.6, 10.6, 13.6 (HWH); Portland Bird Observatory, 10.6, 3 on 13.6, 2 on 15.6 (viaP); Weymouth, 2 on 12.6 (PHS); Whitesheet, 14.6 (PAD); Dorchester, 14.6 (JD); Merley, 16.6 (D&MG)

2421 *Bena prasinana* **SCARCE SILVER-LINES** Shaggs, 8.6 (LH); Poole, 10.6 (VG); Wyke Regis, 12.6 (DF); Merley, 15.6 (D&MG); Chase Wood, 2 on 16.6 (J&DK, LdW, PAD, A. Bryant, S. Andrews); Mosterton, 18.6 (NS); Puddletown, 19.6 (HWH); Swanage, 20.6 (JRC); Broadway, 11.7, 15.7 (PH); Motcombe, 14.7 (PBu); Buckland Newton, 15.7 (NS); Wareham Forest, 17.7 (GRH, LH, MSP); Marshwood, 2 on 17.7 (JB)

2430 *Ctenoplusia limbirena* **SCAR BANK GEM** Portland Bird Observatory, 25.8 (viaP)

2432 *Trichoplusia ni* **NI** Dorchester, 28.8 (JD)

2433 *Diachrysia orichalcea* **SLENDER BURNISHED BRASS** Portland Bird Observatory, 18.10 (viaP)

2439 *Plusia festucae* **GOLD SPOT** Broadway, 8.5, 3.8, 2 on 4.8, 2 on 10.8, 25.8, 31.8, 12.9 (PH); Hurn, 13.5, 4.6 (MJ); Puddletown, 25.5 (HWH); Wyke Regis, 26.5 (DF); West Bexington, 9.6 (RE); Chickerell, 14.6, 19.8 (CP); Wareham, 2 on 11.8, 24.8, 1.9, 13.9, 12.10 (BY); Preston, 12.8 (RL); Portland Bird Observatory, 12.8 (viaP); Arne, 16.8 (S.Morgan); Dorchester, 24.8 (JD); Walditch, 2.9 (MSP);East Holme, 9.9 (JC)

2449 *Abrostola trigemina* **DARK SPECTACLE** Poole, 3.5, 4.8 (VG); Broadway, 8.5, 8.6, 10.6, 16.6, 29.6, 30.6,

25.8, 2.9, 5.9, 9.9 (PH); Puddletown, 4.6, 7.6, 8.6, 2 on 16.6, 2 on 18.6, 21.6, 22.6, 27.6, 2 on 29.6, 1.9, 6.9, 9.9, 2 on 11.9 (HWH); Hurn, 5.6, 24.7, 30.7, 14.8 (MJ); Walditch, 9.6, 23.6 (MSP); Spettisbury, 11.6, 10.8, 18.8, 22.8, 23.8, 6.9 (D&JK); Weymouth, 12.6 (PHS); Wyke Regis, 13.6, 7.8 (DF); Portland Bird Observatory, 17.6, 19.6, 28.8, 29.8, 3.9, 5.9 (viaP); Charmouth, 19.6 (GS); Shaggs, 4.7 (KT, LH), 16.8 (ZR); Broadmayne, 12.7 (PB-J); Marshwood, 11.8 (JB); West Bexington, 11.8, 28.8, 30.8, 9.10 (RE), 7.9 (PHS, RE); Tolpuddle, 2 on 6.9 (JuF); Kingcombe Centre, 7.9 (PHS)

2451 *Catocala fraxini* **CLIFDEN NONPAREIL** Puddletown, 7.9, 20.9 (HWH); East Holme, 1.10 (JC)

2452 *Catocala nupta* **RED UNDERWING** West Bexington, 6.8 (RE), 27.8 (PHS); Preston, 24.8 (RL); Ashington, 5.9 (JiF); Kingston, 5.9 (PBe); Walditch, 2 on 7.9 (MSP); Broadway, 2 on 8.9 (PH); Hurn, 14.9, 25.9 (MJ); Shaggs, 17.9, 20.9 (LH); Broadmayne, 30.9 (PB-J); Burton, Christchurch, 2.10 (J. Southworth); Spettisbury, 10.10 (D&JK); East Holme, 13.10 (JC)

2465 *Tyta luctuosa* **FOUR-SPOTTED** Portland Bill, by day on 28.4 (viaP); Portland, 3 on 7.6 (R. Hilton, P. Clarke)

2466 *Lygephila pastinum* **BLACKNECK** Ferndown, 7.6 (DC); Verwood, 11.6 (CC); Broadway, 14.6, 16.6 (PH); Alners Gorse, 12 on 15.6 (PBu), by day on 5.7 (BC), 4.8 (PBu); Ryewater Nursery, 21.6 (NS)

2475 *Parascotia fuliginaria* **WAVED BLACK** Verwood, 12.7 (MWe)

2476 *Hypena crassalis* **BEAUTIFUL SNOUT** Wimborne, 11.6 (D&MG); Puddletown, 14.6, 15.7 (HWH)

2478 *Hypena obsitalis* **BLOXWORTH SNOUT** Shaggs, 1.2 (LH); Freshwater Bay, 9 larvae distrubed from pellitory amongst crevices by day on 9.7 (MSP); West Bexington, 28.10 (RE); Durlston, on ivy blossom on 31.10 (LH, S. Clancy)

2480 *Hypena rostralis* **BUTTONED SNOUT** Shapwick, 10m away from trap on garage wall 10pm. on 29.4 (PAD); Verwood, 17.5 (MWe), 7.6 (CC, MWe); Corfe Mullen, 20.5 (R&L. Lambert); Hurn, 25.5 (MJ); Spettisbury, disturbed from garage on 9.10 (D&JK)

MOTH IMMIGRATIONS TO DORSET IN 2007 PLUS POTENTIAL SOURCES OF ORIGIN

Peter Davey

Overview

In marked contrast to the fabulous season of 2006, the past season has been a complete curate's egg. The good parts were the record-breaking warmth of the first four months of the year, notably the stunningly warm and sunny April that tempted all manner of species to emerge weeks ahead of their normal flight time. Indeed two Lepidoptera species were new to the county in April and both are thought to have at the very least been medium-range travellers from sources well to the east of the county. Following a mixed May, the weather lapsed into an often cyclonic pattern that lasted right though July and intermittently into August and provided one of the cloudiest and wettest summers ever known. The unusual nature of the summer was apparently due to El Ninã, an ocean-atmosphere coupled system that displaces southwards the usual path of the jet stream over the North Pacific and North Atlantic, thus causing high rainfall in western temperate regions of North America and northern Europe, respectively. This combination occurred on only three occasions in the 20th century, in 1907, 1954 and 1956.

As can be seen from the table of annual tallies (below) of a range of immigrant species seen in 2006 and 2007, only Delicate and White-speck had a better year last season. Many other southern European species were scarce or even absent, notably Scarce Bordered Straw, Ni, Vestal and Small Mottled Willow, and despite extraordinarily large numbers of these four southern European species in 2006, it was evident that none of them were able to survive the 2006/7 winter in any of their life-cycle stages here in the UK.

Species	2006 Total	2007 Total
Bordered Straw	440	4
Convolvulus Hawk	321	21
Cosmopolitan	197	0
Delicate (first brood only)	104	135
Four-spotted Footman	275	56
Gem	130	21
Ni	137	1
Scarce Bordered Straw	1041	11
Small Mottled Willow	753	0
Striped Hawk	117	4
Vestal	480	1
White-speck	53	65
Ancylosis oblitella	168	0
Antigastra catalaunalis	33	0
Cydia amplana	19	2
Evergestis extimalis	21	6
Nephopteryx angustella	40	4
Ostrinia nubilalis	179	49
Palpita vitrealis	79	5
Yponomeuta rorella	51	1

Yet despite El Ninã and the damp and dismal summer, annual mean temperatures during 2007 were still well above the 350-year long-term average, with ten months out of twelve registering positive anomalies. This continued warmth spurred on previously immigrant but now resident species such as White-point and Cypress Carpet, and these continued to consolidate their northward spread across the county. The larger numbers of Delicate in 2007 may have been due to limited survival of overwintering larvae in Dorset. Humming-bird Hawk was another species that was seen widely both indoors and outdoors during the first three months of the year, hinting at successful overwintering too but as hibernating adults. Newcomers, such as Clancy's Rustic appear to have survived the 2006/7 winter to produce an indigenous brood in several places along the Dorset coast, plus inland localities in the vicinity of river systems in southern Dorset at Hurn and Wareham. Hurn also appears to have hosted a colony of *Ostrinia nubilalis*, with 34 found at this site out of the 49 seen Dorset-wide in 2007. Four-spotted Footman too seem to have gained a foothold in the county over the past few years and frequent immigration of this species yet again in 2007 continued to augment residents already here. The two Clifden Nonpareil trapped at Puddletown in September during a prolonged spell of Atlantic-sourced north-westerly airflows suggest colonisation of this scarce immigrant amongst poplars in the heart of Dorset. Although immigration events were a pale shadow of those that occurred in 2006, some very rare immigrants were seen. These included Angle-striped Sallow, three Bedstraw Hawks and four Great Brocades, all arriving from Scandinavia on north-easterly airflows at the very end of July and again at the

end of August, and the exotic Scar Bank Gem and Slender Burnished Brass, two plusia species usually found in the sub-tropics.

Notable immigration events and associated weather conditions

January was a remarkably mild month with mean temperatures approaching a staggering four degrees centigrade above normal. Winds were mainly strong and from the south-west for the first three weeks with no opportunity for immigration. An anticyclonic regime pushed across the UK backing north-east winds right round to west by the end of the month. The airmass over southern England between 31 January and 3 February had originated over north-west Africa and southern Iberia on 26 January before moving north-west to 10°W and then heading east-north-east to south-west England. A single Pyralid *Euchromius ocellea* was trapped at West Bexington on 31 January together with *Udea ferrugalis*, a Silver Y at Portland Bird Observatory on 2 January, and a Humming-bird Hawk at Poole on 3 February. The remainder of February plus the first week of March was largely cyclonic with winds often from the south-west off the Atlantic and no opportunities for immigration. With high pressure moving across France into central Europe on 10 March, southerly winds blew from Iberia and seven reports of Humming-bird Hawk were received together with light trap records of Dark Sword-grass and a single *Nomophila noctuella* up until mid-month; from this time arctic northerly then north-easterly winds took over. During the last few days of March, a more temperate south-easterly brought additional Humming-bird Hawk and Pearly Underwings to coastal traps plus a Silver Y on the last day of the month to West Bexington.

The first week of April was dominated by north-easterly winds that slowly moderated and warmed. This warming trend continued into the second week as high pressure moved across southern England towards the Baltic, and with high-level winds from the Mediterranean from 12 April and at the surface level the next day. The warm Mediterranean air lingered across England right through to the end of the month, with light winds between south and east for the most part. Approximately seventy Silver Y and small numbers of *Plutella xylostella*, *Udea ferrugalis*, Pearly Underwing and Dark Sword-grass were recorded; more unusual species included the following:

- Balsam Carpet at Hurn on 10 April (first county record)
- Northern Drab at Puddletown and at Kingston on 12 April, Gillingham on 16 April, and at West Bexington on 28 April
- Tissue at West Bexington on 13 April
- Nutmeg at Kingston on 13 April, at Portland Bird Observatory on 17 April, at Trigon on 22 April, Gillingham on 26 April and at Dorchester on 28 April
- Blossom Underwing at West Bexington on 13 April and at Puddletown on 13 and 25 April
- Peacock at Ashington on 16 April
- Gem at Puddletown on 24 and at Portland Bird Observatory on 30 April
- Tawny Shears at Spettisbury on 26 April
- *Scrobipalpa atriplicella* at Holt Heath on 27 April (fourth recent Dorset record)
- *Cydia strobilella* at Holt Heath on 27 April, and at Puddletown on 29 April and 1 May (first, second and third county record).

The fine weather of April extended into the first few days of May but thereafter an unsettled and windy south-westerly weather type prevailed. Winds backed round to the south temporarily on 12 May and the following potential immigrants appeared thereafter. Pressure rose at the end of the third week of May before falling to low levels by the end of the fourth week. No discernible immigration occurred during the last half of May.

- Nutmeg at Trigon on 12 May
- Mocha at Portland Bird Observatory on 13 May
- Peacock at Wimborne on 15 May
- Blair's Mocha at Ashington on 18 May.

High pressure centred over Scandinavia during the first ten days of June caused a north-easterly flow to blow across England, and, with a light southerly flow at high levels from 8 June, conditions were favourable for immigration from northern Europe and southern Europe too. Notable dispersive or immigrant species included:

- Portland Ribbon Wave at West Bexington on 4 June
- *Phlyctaenia perlucidalis* at Hurn on 6 June
- *Homoeosoma nebulella* at Puddletown on 6 June
- *Grapholita caecana* at Puddletown on 7 June (new county record)
- *Ostrinia nubilalis* at Shaggs on 7 June and at Shaggs and Puddletown on 8 June
- Dark Spectacle at Puddletown on 7 and 8 June, at Walditch on 9 June, at Spettisbury on 11 June and at Weymouth on 12 June
- Red-necked Footman at Puddletown on 7 June and two at Puddletown, two at Hurn and one at Kingston on 8 June, and one at Ashington on 10 June
- *Dioryctria abietella* at Puddletown on 7 June, at Motcombe, Gillingham and at Portland Bird Observatory on 8 June and 10 June
- Rosy Marbled at Creech Bottom on 7 June and at Shapwick on 9 June
- Pauper Pug at Puddletown on 8 June (second county record)
- *Nomophila noctuella* at Motcombe on 8 June
- *Lozotaenioides formosanus* at Portland Bird Observatory on 8 June
- Least Carpet at Portland Bird Observatory on 9 June
- Angle-barred Pug at Puddletown on 9 June
- Thyme Pug at Puddletown on 9 June
- Clancy's Rustic at Puddletown on 10 June and at Winterborne Stickland on 12 June
- Gem at West Bexington on 10 June
- Peacock at Creech Bottom on 12 June.

From the middle of June until the 29 July, the weather became very cyclonic with occasional brief southerly spells from Iberia. The following dispersive or migrant species were observed during this extremely wet episode:

- *Dioryctria abietella* at Portland Bird Observatory on 15 June and 24 July
- Striped Hawk West Bexington on 15 and 16 June, at Lytchett Matravers on 16 June and at Puddletown on 20 June
- Barred Red at Bridport on 18 June and at Walditch on 14 July

- White Satin at Wyke Regis on 18 June
- Marbled Coronet at Shapwick on 18 June
- Bordered Straw at Wyke Regis on 18 June, at West Bexington on 18 and 24 June and at Charmouth on 19 June
- Dark Spectacle at Portland Bird Observatory on 17 and 19 June, at Charmouth on 19 June, at Walditch on 23 June and Shaggs on 4 July
- Gem at Hurn on 19 June
- *Zeiraphera isertana* at Southwell on 20 June and at Portland Bird Observatory on 20, 21 June and 2, 3 July
- Four-spotted Footman at Shaggs on 20 June, Hurn on 22 and 23 June and 1 July, at Bloxworth on 23 June, at Puddletown on 29 June, at Verwood on 29 June and 12 July, at Walditch on 12(2) and 14 July, at Broadwey on 14 July and at Wyke Regis on 20 July
- *Palpita vitrealis* at Puddletown on 21 June and 4 July, and at Portland Bird Observatory on 28 July
- Scarce Bordered Straw at Puddletown on 21 June
- *Ostrinia nubilalis* at Walditch and West Bexington on 22 June and on 4 July
- *Phlyctaenia perlucidalis* at Broadcroft Quarry on 22 June
- Clancy's Rustic at Hurn on 22 June
- Death's-head Hawk at Tolpuddle on 27 June
- Least Carpet at Winterbourne Stickland on 28 June
- Yarrow Pug at Preston on 29 June (first county record)
- *Galleria melonella* at Walditch on 4 July and at West Bexington on 16 July
- Devonshire Wainscot at Portland Bird Observatory on 13 July (eighth recent Dorset record)
- *Achroia grisella* at Hurn on 17 July
- Vestal at Wareham Forest on 17 July
- White Satin at Wareham on 21 July
- White-speck at West Bexington on 22 July
- Peacock at Hurn on 24 July
- Langmaid's Yellow Underwing at Portland Bird Observatory on 24 July
- *Yponomeuta rorrella* at Puddletown on 25 July
- *Zeiraphera griseana* at Puddletown on 27 July (fifth county record).

Pressure eventually began to rise as an, albeit short-lived, anticyclone moved south-east into the UK from 29 July, veering winds from north-west through north-east and then to east at the very end of July. A Bedstraw Hawk was trapped at Puddletown and at Portland Bird Observatory on the 30 July. As the anticyclone declined and moved across central Europe it made way for a shallow low pressure area to move north-east from Iberia and across south-east England at the start of August. A further ridge of high pressure followed by yet another Iberian low on 6 August ensured an additional supply of migrants from the south. Winds then fell generally light and variable until 12 August. The following mainly southern European species were seen:

- *Cydia amplana* at Hurn on 1 August
- Convolvulus Hawk at Portland Bird Observatory on 2, 4, 7(2) and 8 August, and at West Bexington on 15 August
- Four-spotted Footman at Walditch on 3 August, at Broadwey on 3 and 4 August, at Alner's Gorse on 4 August, at Wyke Regis on 5 August, and at Charmouth on 6 August
- Gem at West Bexington on 4 August (2), at Puddletown on 5 and 10 August and at Ashington on 7 August
- White-speck at Ashington on 4 August
- Porter's Rustic at Puddletown and at West Bexington on 4, 5 and 14 August, and at Portland Bird Observatory on 7 and 10 August
- *Palpita vitrealis* at West Bexington on 5 August and at Portland Bird Observatory on 6 August
- Blair's Mocha at Burton on 5 August and at Charmouth on 6 August
- Wormwood at Portland Bird Observatory on 5 August
- Least Carpet at Burton and Swanage on 5 August, West Bexington on 10 August and at Winterbourne Stickland on 13 August
- Dark Spinach at Portland Bird Observatory on 6 August, at Forest Gate on 11 August and at West Bexington on 15 August
- *Evergestis extimalis* at Portland Bird Observatory on 11 August.

The very cyclonic weather with predominantly south-westerly winds experienced during June and July returned from 13 August for a week. Thereafter, the centre of low pressure transferred to the near continent and a north then north-easterly airflow persisted until 30 August, although high-level winds were from a south-easterly direction between 21 and 23 August. The following notable migrant species both from northern and southern Europe appeared at this time:

- *Evergestis extimalis* at West Bexington on 21 August
- Dark Spinach at East Holme on 21 August
- Hoary Footman at West Bexington on 21 August
- Convolvulus Hawk at Portland Bird Observatory on 22, 23 and 30 August, and at Puddletown on 26 August
- Mocha at Swanage on 23 August and Lyme Regis on 24 August
- *Cydia amplana* at Puddletown on 24 August
- *Galleria melonella* at West Bexington on 24 August
- Portland Ribbon Wave at West Bexington on 24 and 31 August and at Preston on 30 August
- Four-spotted Footman at Preston 24 August
- Great Dart at Portland Bird Observatory on 24 August
- Angle-striped Sallow at West Bexington on 24 August (seventh Dorset record)
- Great Brocade at Bournemouth on 23 August, at Gillingham and Kingston on 24 August, and at Spettisbury on 25 August (seventh, eighth, ninth and tenth county record)
- White-speck at Portland Bird Observatory on 25 August
- Scar Bank Gem at Portland Bird Observatory on 25 August (fourth Dorset record)
- Bedstraw Hawk at Portland Bird Observatory on 26 August
- Striped Hawk at West Bexington on 27 August
- Ni at Dorchester on 28 August
- Dark Spectacle at West Bexington on 28 and 30 August and Portland Bird Observatory on 28 and 29 August.

The first fortnight of September was characterised by mainly light north-westerly airflows around high pressure to the south-west of the UK. The last fortnight was windier with south-west to westerly winds from off the Atlantic. From 26 September, an anticyclone moved across northern Scotland to Finland producing north then north-easterly winds until the end of the month. There was therefore very

little opportunity for immigration in September, so the capture of two Clifden Nonpareil on 7 and 20 September plus a Clouded Magpie on 9 September at Puddletown is intriguing.

As pressure rose across northern Europe on 30 September south-easterly winds from southern Europe set in during the first week of October; following a brief spell of anticyclonic conditions with light winds, southerlies became established on 14 October. The following noteworthy immigrant or dispersive Lepidoptera were seen during the first fortnight:

- Scarce Bordered Straw at Puddletown on 30 September, at West Bexington on 2, 6 and 12 October, at Beaminster on 3 October, at Charmouth on 4 October and at Portland Bird Observatory on 4 and 9 October
- Four-spotted Footman at Walditch on 1 October, Ashington on 2 October, at Shaggs on 2, 4, 8, 11(4), 12, 13(5), 14(3), 15 and 17 October, at Broadwey on 4 October, at Hurn on 8 October, at Puddletown on 12, 14(3), 15 October, at Tolpuddle on 12 October, East Holme on 13 October and West Bexington, Merley and Durlston on 14 October
- Clifden Nonpareil at East Holme on 1 October
- Dusky-lemon Sallow at West Bexington on 2 October
- Clancy's Rustic at Dorchester on 2 October, at Puddletown on 7 and 10 October, three at Portland Bird Observatory on 8(3) and 13 October, at Lyme Regis on 9 October, at Shapwick on 14 October, at Swanage on 15 October and at Spettisbury on 16 October
- Convolvulus Hawk at Arne on 7 October
- Pale-lemon Sallow at Broadwey on 8 October (fourth county record)
- Flounced Chestnut at Puddletown on 11 October
- Cosmopterix pulchrimella at Puddletown on 12 October (first inland county record of very recent coloniser to the UK)
- Lyonetia prunifoliella at Puddletown on 13 October (third county record)
- Gem at Shaggs, Poole, Preston on 14 October and at Portland Bird Observatory on 14, 17 and 18 October
- White-speck at Portland Bird Observatory on 14 October and at Shaggs on 15 October
- Blair's Wainscot at Ringstead Bay on 14 October
- Southern Chestnut at Motcombe on 14 October
- Slender Burnished Brass at Portland Bird Observatory on 18 October (sixth county record).

An intensifying high pressure area moved slowly across England to Scandinavia from 17 October and a few days later easterly winds became established, lasting until 25 October. Apart from several White-speck moths recorded in coastal locations, no notable immigrants were seen at this time. Southerly winds from 26 October veered south-westerly from 29 October. The following species were seen during the last few days of the month:

- Gem at Durlston on 25 and two on 31 October, and at Portland Bird Observatory on 27 and 31 October and 1 November,
- Flame Brocade at Preston on 26 October, at Broadwey on 27 October and at Portland Bird Observatory on 30 October
- Clancy's Rustic at Puddletown on 26 October
- Bloxworth Snout at West Bexington on 28 October and at Durlston on 31 October
- Four-spotted Footman at Puddletown on 31 October
- Scarce Bordered Straw at Portland Bird Observatory on 1 November.

No significant immigrations were observed in the last two months of the year.

DORSET HOVERFLY REPORT 2007

David and Ted Levy

The year 2007 was much better than expected for Hoverfly records and 127 species were recorded in the County including one new species; a specimen of *Eupeodes goeldlini* was taken by Dave during an especially comprehensive study of Wareham Forest, in the second half of the year. The new species is a recent split and may be revealed in other collections eventually, when determination features are more widely publicised. It is quite similar to other species of the *Eupeodes* genus.

Once again we have to thank Mick Parker for an impressive list for the year.

The following species are in our opinion the most interesting records for 2007.

Syrphidae (Diptera)

Platycheirus splendidus	Cerne Abbas 13.7.07
Chrysotoxum festivum	Wareham Forest 1.9.07, 8.9.07
Chrysotoxum vernale	Tonerpuddle Heath 20.5.07, 29.5.07
Didea fasciata	Puddletown Forest 7.10.07; Wareham Forest 25.8.07, 12.10.07
Didea intermedia	Wareham Forest 14.10.07
Eupeodes bucculatus	Delcombe Wood 21.4.07; Wareham Forest 11.08-15.9.07
Eupeodes goeldlini	Wareham Forest 23.8.07. New species for Dorset determined from the latest Key (Speight, Sarthou and Levy, D., 2007, *Entomologists Record* **119**, 213–19)
Eupeodes nielseni	Wareham Forest 12.8.07, 25.8.07
Eupeodes nitens	Wareham Forest 12.8.07, 15.9.07
Parasyrphus punctulatus	Great Coll Wood 7.4.07; Holt Hill Wood 6.4.07
Scaeva selenitica	Puddletown Forest 7.7.07
Sphaerophoria rueppellii	Bramblecombe 12.7.07
Sphaerophoria taeniata	Binegar Plain 28.7.07
Sphaerophoria virgata	Wareham Forest 23.8.07, 2.9.07, 14.10.07
Xanthandrus comtus	Grimstone 21.10.07; Moreton Plantation 27.6.07; Puddletown Forest 28.6.07, 7.7.07
Arctophila superbiens	Ibberton 9.9.07
Brachypalpoides lenta	Lewcombe 18.5.07; Oakers Wood 19.5.07; Watcombe Bottom Wood 20.5.07
Cheilosia albipila	Waterley Wood 1.4.07
Cheilosia griseiventris	Blagdon Copse 20.5.07; Kitemoor 2.9.07
Cheilosia lasiopa	Grimstone 29.5.07
Cheilosia latifrons	Grimstone 19.8.07; Ibberton 9.9.07; Kitemoor 2.9.07; Nether Cerne 12.5.07

Cheilosia longula	Wareham Forest 13.10.07
Criorhina floccosa	Ashley Wood 29.4.07; Delcombe Wood 29.4.07; Lewcombe Farm 18.5.07; Oakers Wood 5.5.07; Watcombe Bottom Wood 20.5.07
Criorhina ranunculi	Ashley Wood 29.3.07; Bloxworth Wood 6.4.07; Delcombe Wood 20/21.4.07; Great Coll Wood 7.4.07
Eristalinus aeneus	Portland – Portland Bird Observatory 11.3.07; Powerstock Common (NR) 17.8.07
Helophilus hybridus	Powerstock Common 17.8.07
Heringi heringia	Holt Hill Woods 20.4.07
Myolepta dubia	Stockwood 10.6.07
Neoascia meticulosa	Nether Cerne 12.5.07
Pipiza bimaculata	Grey's Wood 6.5.07
Rhingia rostrata	Wareham Forest 1.9.07. Second Dorset locality record
Sphegina verecunda	Nether Cerne 12.5.07; Stockwood 10.6.07
Volucella inanis	Wareham Forest 23.8.07, 7.9.07
Volucella zonaria	Bincombe Hill 29.7.07; Portland 22.7.07, 26.8.07
Xylota abiens	Oakers Wood 19.5.07
Xylota jakutorum	Moreton Plantation 27.7.07; Tonerpuddle Heath 29.5.07

MAMMALS

J.A. Stobart

During 2006 a total of 2725 records were received covering 43 terrestrial species; recorder effort dropped in 2007 with 2062 records received covering 40 species. In addition, the Durlston Marine Project reported sighting of 5 species of marine mammals in both 2006 and 2007, with 46 records received in 2006 and 78 in 2007. Other organisations and groups that continue to contribute invaluable work on the recording and monitoring of Dorset's mammals include the Dorset Badger Group, Dorset Bat Group, Dorset Otter Group (DOG), Dorset Wildlife Trust (DWT), National Trust (NT), Natural England (NE), and the Ringwood Natural History Society.

The DWT's 'Tracking the Dorset Hedgehog' (*Erinaceus europaeus*) appeal for public sightings was completed in early 2006 having generated a total of 413 records received from over 400 different recorders. The fantastic response from the public underlines the hedgehog's status as one of our most popular mammals. Over 90% of records received were from gardens or roads in towns and villages with only 4% recorded from farmland or roads away from settlements. In all, 114 different towns and villages were found to have hedgehog populations with around 75% reported from the more built-up areas such as Weymouth, Dorchester, Poole and Bournemouth. These results confirm the trends identified from the preliminary results of the project reported here in 2005. That is that hedgehogs appear to have declined very severely in the wider countryside with our towns and villages now acting as vital refuges. Although recorder effort will have introduced a considerable bias in favour of settlements, the lack of road kills in rural areas strongly suggests that this decline is real, leaving the hedgehog now very much a 'townie'. Although it is pleasing that a wide range of Dorset settlements were found to support hedgehogs, the ever greater pressure for higher density housing means its future within its remaining urban refuges may also be under threat. The conservation of the hedgehog would be greatly helped by the widespread adoption of wildlife-friendly gardening, along with the protection and appropriate management of our urban greenspaces. Ensuring its recovery in the wider countryside may, however, be a far greater challenge.

During 2006/07 the DWT also completed the third survey of the county's water vole (*Arvicola terrestris*) population. The previous county surveys were completed in 1996/97 and 2001/02. Owing to a combination of poor weather and lack of funding, the original set of 274 sample sites was cut down to 90 sites. Despite this reduction in effort, the results have shown that Dorset continues to buck the national trend. Catchments identified as having good water vole populations included the River Frome below Dorchester; River Wey including Radipole Lake and Lodmoor; River Jordan where 24 new positive water vole sites were located by a separate intensive survey undertaken by the Dorset Otter Group; River Bride including the Bridehouse Lake; the lower Brit catchment; and the exciting news of the recolonisation of Abbotsbury Swannery after an absence of over 12 years. Although Poole Harbour was not fully resurveyed, colonies were located at Studland and at Lytchett Bay, while the Brownsea population was reported as 'healthy'. In addition, a few previously unknown colonies were located at the very top of the River Axe catchment. Less positive news came from the River Frome north of Dorchester where formerly positive localities were classified as possible with some old burrows present but no signs of occupation. It is likely that these colonies persist but heavy rain had washed signs away. Other losses were recorded from the River Char catchment; however, there is little evidence that these heavily wooded rivers ever historically supported strong populations. More significantly the survey also concludes that given the continued scarcity of records from the lower River Avon that an extensive water vole population there is unlikely. This conclusion is significant, as unlike the extensively wooded rivers of west Dorset and the flash-flood prone River Stour catchment, the River Avon would seem to provide ideal water vole habitat. However, despite the poor populations on the River Avon, it is clear that the prediction that water voles could be extinct in 94% of occupied sites by 2000 (1989/90 National Water Vole Survey) was in Dorset happily far from the mark, a fact that underlines the importance of continued regular local monitoring of our vulnerable species.

As well as helping the DWT with its water vole surveys the DOG also continued its seasonal monitoring of Dorset's otters. In 2006 otter signs were found at 39.9% of its spot-check sites, while in 2007 with the winter results still to be collated, 40.7% were positive. The ongoing recovery of the Dorset otter population is illustrated by the fact that in 1998, DOG's first full year of monitoring, only 11.6% of checks were positive. An increase in the number of otters inevitably leads to more otters being found dead, with the majority found on roads. In 2006 a total of 14 dead otters were reported, 11 of which were found on roads, while in 2007 15 otters were found dead although only 9 were road casualties.

In 2007 Antoinette Gregory reported the findings of her MSc dissertation on the feeding behaviour of the red squirrels (*Sciurus vulgaris*) on Brownsea Island. The work,

undertaken for the DWT, concluded that the Brownsea red squirrels show a distinct preference for the cones of the non-native maritime pine over the British native Scots pine, and concludes that maritime pine is an important food source on the island. This work brings into focus the value of maritime pine for this important relic population of red squirrel and should influence the future management of Brownsea's woodlands. The study also estimated that the Brownsea squirrel population stands at around 420 individuals. This compares favourably to previous estimates that have tended to put the population at between 200 and 300 individuals. The increase is almost certainly down to difference in the methodology used, but as past monthly peak counts have been reported as high as 298 individuals, the higher estimate seems more likely. Even at this higher population level, ensuring the long-term survival of Brownsea's red squirrels will continue to be a major challenge, with inbreeding, catastrophic events such as major fires and the ever-present danger of the arrival of grey squirrel (*Sciurus carolinensis*) from the mainland all continuing to pose major threats.

The size of the sika deer (*Cervus nippon*) herd in Purbeck is continuing to cause concern, with the area's woodlands, heathlands and the grazing marshes of the southern shore of Poole Harbour all showing signs of severe over-grazing. The National Trust, NE and the RSPB are continuing to work with the other landowners in the area to ensure the sika herd is properly managed and numbers brought down to a level that is not damaging to the habitats that support them. In order to monitor the effectiveness of these ongoing efforts Angela Peters of the National Trust has organised co-ordinated deer counts from across NT's Purbeck Estate, including Hartland Moor. In 2006 426 sika were counted, increasing to a total of 526 in spring 2007. The increase in numbers seems to be centred around Studland with numbers on Hartland Moor remaining stable at 210–220 individuals. Similarly roe deer (*Capreolus capreolus*) numbers on the Purbeck Estate were also up from 26 counted in 2006 to 41 in 2007. The increase in both species is thought to be down to poor weather conditions keeping the deer in cover during the 2006 count although some local movement from outside areas may also be involved. It is interesting to note that the 2007 count did not record roe and sika deer from the same 1km grid square. It is unclear whether this observation reflects avoidance (presumably by the smaller roe), habitat preferences or is simply due to chance.

Since the last mammal report, polecat (*Mustela putorius*) has continued its recovery and is now firmly back on the Dorset list. Five records of pure polecat were received in 2006, four of which were found dead on the road. In addition, there were two further reports of possible pure polecats and a single confirmed polecat–ferret hybrid, again found as road kill. In 2007 numbers of pure polecat records were up to 7 (including 6 road kills) with a further 7 reported as possible pure polecats. Again a single polecat–ferret hybrid was also recorded. Polecat and ferret are considered so closely related that they are now regarded as two forms of the same species, with the ferret bred to be more easily domesticated. The polecat–ferret hybrids display intermediate behavioural characteristics which, in the wild, are thought to put them at a competitive disadvantage to the polecat. So it seems that while the presence of polecat–ferret hybrids complicates recording, they are not considered a major threat to the integrity of the wild population. With the increase in records has also come a spread in the distribution of polecat across the county. Polecats have now been recorded from the Abbotsbury area in the west of the county to East Morden in the east. It is clear that polecats are now well established and on the increase in Dorset.

The visits of NE's voluntary bat wardens to householders undertaking works to their properties continue to contribute invaluable records of bat roosts. In 2006 a total of 75 roosts were located while in 2007 a further 87 were found. In Dorset, brown long eared bat is by far the most common species encountered in houses, with 47% of the records (including all long eared bat records); 30% were pipistrelles (either common pipistrelle (*Pipistrellus pipistrellus*) or soprano pipistrelle (*Pipistrellus pygmaeus*)), 16% were serotine (*Eptesicus serotinus*) and 2% Natterer's bat (*Myotis nattereri*). Apart from a single record of lesser horseshoe bat (*Rhinolophus hipposideros*), the remainder of the roosts were unidentified. The likelihood of encountering bats within buildings in Dorset is illustrated by the results of bat checks undertaken by consultants in support of planning applications. In 2007, of the 171 checks completed over 30% found evidence of bats, with 23% considered to be active in the year of the survey. The relative proportion of the species is comparable to that found by the bat wardens, with long eared bats accounting for 53% of the roosts, pipistrelle 36%, serotine 17% and Natterer's bat 4%.

In 2007, in order to get a population estimate of the rare and endangered lesser horseshoe bat, the Dorset Bat Group completed summer surveys of Dorset's known roosts. Only 8 of the roosts visited were found to support maternity colonies, with a combined peak count of 372 individuals including young. The largest colony, located near Sherborne, supported 86 adults that had 56 young. Given that most of the adults present in the maternity colonies will have been female it is reasonable to assume that the Dorset population at the end of the breeding season totals at least 500 individuals. The Tracking Mammals Partnership estimates that in 2005 the lesser horseshoe bat population in England was around 9000 and increasing at an average of nearly 8% per annum. It will be interesting to see how the Dorset population, which is currently at the edge of the species' UK range, will respond.

The collating of marine mammal records by the Durlston Marine Project revealed that cetacean species were reported off the Dorset coast on 39 separate days in 2006 rising, thanks largely to the establishment of a regular 'Dolphin Watch' on Portland, to 51 days in 2007. The 2006 highlights included a single minke whale (*Balaenoptera acutorostrata*) spotted by fishermen 20 miles off Swanage and a small number of long-finned pilot whales (*Globicephala melas*) reported in Lyme Bay. No whales were seen in 2007 although harbour porpoise (missing in 2006) was seen on five separate occasions in 2007, with one pod off Portland exceeding 10 individuals. The bulk of the remaining sightings were of 1–3 bottle-nosed dolphins (*Tursiops truncatus*) with pods greater than 10 individuals reported on only one occasion in 2006 and on seven occasions in 2007. The largest bottled-nosed dolphin pod reported during the period consisted of 30 individuals seen off Chesil Beach in 2007.

The following includes all species records received, including those collated by the Durlston Marine Project and the NE databases, for 2006–2007 respectively: hedgehog (88/84), mole (*Talpa europaea*) (269/123), common shrew (*Sorex araneus*) (13/7), pygmy shrew (*Sorex minutus*) (8/8), water shrew (*Neomys fodiens*) (15/14), greater horseshoe bat (*Rhinolophus ferrumequinum*) (15/2), lesser horseshoe bat (6/12), whiskered bat (*Myotis mystacinus*) (9/0), Brandt's bat (*Myotis brandtii*) (4/0), Natterer's bat (30/8), Bechstein's bat (*Myotis bechsteinii*) (11/0), Daubenton's bat (*Myotis daubentonii*) (17/4), serotine (46/33), noctule (*Nyctalus noctula*) (32/11), common pipistrelle (89/42), soprano pipistrelle (27 16), Nathusuis' pipistrelle (*Pipistrellus nathusii*) (1/2), barbastelle (*Barbastella barbastellus*) (2/1), brown long eared bat (62/39), grey long eared bat (*Plecotus austriacus*) (1/0) rabbit (*Oryctolagus cuniculus*) (210/147), brown hare (*Lepus europaeus*) (84/57), grey squirrel (120/114), bank vole (*Clethrionomys glareolus*) (4/11), field vole (*Microtus agrestis*) (6/13), water vole (15/122 inc. 106 records from DWT survey), wood mouse (*Apodemus sylvaticus*) (46/35), yellow necked mouse (*Apodemus flavicollis*) (0/1), harvest mouse (*Micromys minutus*) (3/2), house mouse (*Mus domesticus*) (7/0), brown rat (*Rattus norvegicus*) (32/58), common dormouse (*Muscardinus avellanarius*) (96/75), minke whale (1/0), harbour porpoise (0/5), common dolphin (*Delphinus delphis*) (2/1), bottle-nosed dolphin (31/62), long-finned pilot whale (1/0), fox (*Vulpes vulpes*) (214/166), stoat (*Mustela erminea*) (17/9), weasel (*Mustela nivalis*) (25/7), polecat (5/7), polecat x ferret (1/1), mink (*Mustela vison*) (20/14), badger (*Meles meles*) (365/215), otter (*Lutra lutra*) (365/234 inc. DOG records), common seal (*Phoca vitulina*) (0 / 3), grey seal (*Halichoerus grypus*) (1/2), sika deer (30/113 inc. 88 records from the NT coordinated survey), fallow deer (*Dama dama*) (24/21), roe deer (192/102 inc. 18 records from the NT coordinated survey), muntjac (*Muntiacus reevesi*) (0/1) and wild boar (*Sus scrofa*) (2/0).

FIELD MEETING REPORTS 2007

John Newbould

River Frome Winter Surveys

Three members of the Society take part in this survey on a regular basis *viz.* Patrick Constable, Peter Hatherley and John Newbould. The survey usually takes place on the first Thursday of each month from January to April and October to December, looking at wet areas between Dorchester and Wareham and this year was the sixth consecutive year. The early months of 2007 started what was to prove to be one of the wettest summers on record. Unfortunately the ground was so dry, the water meadows did not become flooded until March. Regrettably this had no impact on Lapwing and Golden Plover, with no records from the study area in the first quarter and just one record at Wool in October. In January we recorded 100 Redwing adjacent to the Stoborough by-pass and over 200 Fieldfare at Woodsford in October. The Frome Valley is normally a good habitat for Mute Swan *(Cygnus olor)*, but numbers were down in 2007. Our maximum count was 109 in January. However, with possibly the mild winter and the very wet following summer, other feedings areas were available. With the Fleet and Wey being the top British site for this species (Collier *et al.* 2005) the Frome Valley is an important overspill area. We recorded very few ducks other than the resident Mallard. In early March over 40 Shelduck *(Tadorna tadora)* were recorded at East Holme in the flooded meadows. Green (2004) maps this species inland around Poole Harbour. Teal numbers have declined significantly at Wool where the pond appears to have been taken over by Soft Rush.

Although we are only seeing small numbers, Cormorant seems to be increasing with ones or twos being seen at three or four sites each visit. In January, Rooks were seen stripping maize near Hurst Bridges. In the spring we recorded Cetti's Warbler at Lower Bockhampton and Woodsford. In October we recorded the same species at Wool and later at Lower Bockhampton twice. This species is rapidly expanding its range. Jon Campbell tells me that it is regularly heard at both Radipole and Lodmoor RSPB Reserves in Weymouth.

29 March, 3 May, 6 September and 11 December 2007

Farmland Bird Surveys – Golden Cap Estate based at Filicombe Farm

In total, forty-six birds were observed using the estate and foreshore during the survey. This represents approximately 17% of the annual total observed in Dorset in a typical season. Four of the species *viz.* House Sparrow, Skylark, Linnet and Song Thrush are Red Data book species and a further nine birds, including Short-eared Owl, are on the amber list. A full report may be found on pp. 00

21 April 2007

Upton (Osmington) – Spring Bottom

By permission of Mr and Mrs T. Pomeroy. Spring Bottom woods are on a steep valley slope with a spring running along the valley floor located approximately 1km north of Bran Point. Typically of Ash-Field Maple–Dog's Mercury (NVC type W8) woodland adjacent to the coast, Sycamore is quite dominant. Primrose *(Primula vulgaris)* was plentiful on the woodland edges, with Bluebell *(Hyocynthoides non-scripta)* scattered through the woods. In these wet coastal woods, Ivy seems to dominate the ground cover. There are two ponds in the valley bottoms with Marsh Marigold *(Caltha palustris)* and Water Boatman *(Corix punctata)*. The steep valley slopes on the western side shown signs of cultivated strips, but the eastern slope is a steep Erect Brome grassland area, where we saw a hare. Among the birds recorded on the day, a Grey Wagtail at the pond side was the most unusual.

12 May 2007

Nether Cerne

Five members visited Nether Cerne by invitation of Edward Gallia. It was an interesting day, when we needed to spend time orientating ourselves to find interesting areas on this mixed arable and grassland farm. The farm is bisected by the A352 Sherborne–Dorchester Road and in the valley bottom the River Cerne. To the north of the hamlet, the family have created a lake, which contained Ivy-leaved Duckweed *(Lemna triscula)*. Alder woodland (NVC type W6) lined the banks in places, elsewhere pond sedges, Yellow Flag *(Iris pseudocorus)* and Marsh Marigold *(Caltha palustris)* were found in open margins. To the east of the lake, the field was mostly improved grassland, but adjacent to the lake the footpath was quite wet with rushes, Marsh

Foxtail *(Alopecuris geniculatis)* and Marsh Thistle *(Cirsium palustre)*. A plantation to the north-east has been planted since 1960. However, a bank to the pasture had Primrose *(Primula vulgaris)* and the mining bee *Andrena cineria* (determined by Mr D. Hallett).

In the afternoon session, I tested the latest Defra Hedgerow Survey forms, which have poor species lists and are needlessly complicated. The present policy drive, for which information is needed, relates to nutrient rich verges, especially by Stinging Nettle and a drive to increase hedgerow trees. My preliminary work indicates that the latter could conflict with the former due to the nutrient loading from leaf-fall. The survey did reveal Hairy Violet *(Viola hirta)* on a roadside hedgebank. I also surveyed the River Cerne in the village. The river has a concrete bank to the roads, with clean water and a gravel bottom. The water crowfoot, *Ranunculus penicillatus* ssp. *pseudofluitans* typical of the Dorset chalk streams is present together with Hemlock Water-dropwort *(Oenanthe croccata)*. Buckthorn *(Rhamnus cathartica)* and a 2m coppiced stool of Field Maple were also found at the stream edge.

16 June 2007

Corfe Common – joint with Dorset Botany Group

Ted Pratt led us in an exploration of the western side of this superb grassland site; it seemed that every few metres walked led us into a new micro-habitat, with a subtly different plant community. Ted's wise words on the need for wellington boots proved all too true, but the common also contains plenty of drier areas such as the fenced square surrounding the only Corfe site for Viper's-grass *(Scorzonera humilis)*. Other highlights included frequent orchid hybrids; a first view of Marsh Lousewort *(Pedicularis palustris)* for those of us that have been trying without success to re-find old Dorset records; a first record of Leafy Rush *(Juncus foliosus)* for the site and an eyebright *Euphrasia confusa*. The skies were grey throughout but we were lucky that the rain held off and we were able to stay for the complete day. Many thanks to Ted Pratt for giving us such an enjoyable introduction; we hope that the group will return to Corfe common for another visit at some time. Robin Walls lent expert support and transcribed the extensive record card onto D-Map.

Jonathan Crewe – Acting secretary DFG

23 June 2007

Pentridge to the county boundary

The programme had proposed a visit to Harbin's Park, which regrettably was postponed for one week. Two members re-arranged a visit at the last moment to look at the track from Peaked Post to Martin Down (along Bowling Green Lane). Of historical interest, the Dorset Cursus runs parallel to this lane some 200m to the east before crossing it near the north-east end. The entrance to Bowling Green Lane was marked at Peaked Post by a large Sycamore *(Acer pseudoplatanoides)* on the south side of the metalled road into the village. Sycamore is common and considered a Neophyte (Preston *et al.* 2002), was probably introduced into Britain in the 15th or 16th century (Rackham 2003; Grime *et al.* 2007) and many field naturalists dismiss the species as being unimportant. Defra (Anon. 2007) consider Sycamore with a diameter greater than 1.39m to be truly ancient and there were a number of large coppiced Sycamore further along the lane suggesting that this tree was used quite early in the history of Sycamore on Cranborne Chase. On entering Bowling Green Lane, it was apparent that we had entered an old sheep drove with many old trees along both sides of the track. There were many Ash *(Fraxinus excelsior)* stools with a diameter of around 1m. Along the lane, we recorded ten other woody plants, including coppiced Field Maple *(Acer campestre)*, Dogwood *(Cornus sanguinea)*, Hazel *(Corylus avellena)*, Hawthorn *(Crataegus monogyna)* Spindle *(Euonymus europaeus)*, Holly *(Ilex aquifolium)*, Crab Apple *(Malus sylvestris)*, Buckthorn *(Rhamnus cathartica)*, Dog Rose *(Rosa canina)* and Wayfaring-tree *(Viburnum lanata)*. A number of these shrubs formed large coppice stools with a Field Maple measuring 1.2m diameter and another measuring 2m (at the likely eastern point where the Cursus crosses the track), Holly with a diameter of 1m and Hawthorn, again coppiced with a diameter of 0.6m. On the north-west side of a much younger ash coppice (SU 032 184) is a pollarded ash measuring 1.6m diameter at breast height (1.19m considered truly ancient – Anon. 2007). We were astounded to see spruce planted in a 100m stretch along the north-west boundary with a dense stand of Hogweed *(Heracleum sphondilium)* within the lane. As far as we could see, both sides of the lane have a field bank approximately 0.5m high to the adjacent fields. However, recent woody growth, within the 20th century, has narrowed the lane from around 10m to about 2m. Many of the shrubs are covered in Traveller's Joy *(Clematis vitalba)*. Amongst the herbs, the most unusual seen was Dark Mullein *(Verbascum nigrum)*. North-east Dorset is its stronghold in the county (Bowen 2002). There was no evidence of recent use by motor vehicles (even motor-cycles) on our visit.

Arriving at a crossroads of paths, we took the eastern route to Bokerley Ditch. Here the path is much narrower across Bokerley Down than the first stage. In contrast, the shrubs were younger. There were only six species, Hawthorn, Blackthorn *(Prunus spinosa)*, Dogwood, Spindle, Whitebeam *(Sorbus aira)* and two bushes of the rare Juniper *(Juniperus communis* subsp. *communis)*. Pearman (Edwards and Pearman 2004) visited the area in 2003 and described one bush as having been almost massacred by a flail. This specimen seems to have recovered, with both bushes being over 2m high. The Whitebeam, in contrast to other specimen seen on the County Boundary Survey, were quite young but from the point where the first one was recorded (SU 04239 18967) the verge vegetation changed from the rank False-Oat-grass type MG1 to the more open Upright Brome CG4. From here eastwards to the Ditch, plants such as Knapweed Broomrape *(Orobanche elator)*, Thyme *(Thymus polita)*, Pyramidal orchid *(Anacamptis pyramidais)* and Drop-wort *(Filipendula vulgars)* were seen. Interestingly, north of the footpath, the crops were arable, but south of the footpath the land appeared to be part of a dairy farm. On Bokerley Down, there were no hedges, but fields were divided by post and wire with improved grassland. However, along the line of the fences, the grass was not totally improved and the cattle had grazed through the fence, leaving a Sheep's Fescue sward with a few chalk herbs. This was particularly noticeable walking up to Whitely Top, alongside the internal farm track where Lady's Bedstraw *(Galium vernum)* was noticeable.

Returning to Pentridge by the eastern footpath known as the Jubilee Trail, we walked alongside a field of barley where as much as 5% of the crop had been flattened by a

large flock of rooks eating the nearly ripe grain. The field margin contained plants such as Dove's-foot Crane's-bill *(Geranium molle)* and Wild Pansy *(Viola arvense)*. Walking into Pentridge from Whitely Top there were a number of plants of Greater Celandine *(Chelidonium majus)*on the roadside and near the church three Geraniums were seen *viz.* Meadow Crane's-bill *(G. pratense)* along with French Crane's-bill *(G. endressii)* and Hedgerow Crane's-bill *(G. pyrenaicum)*. An old cottage had House-leek *Sempervivum tectorum)* on the roof.

Twelve species of butterfly were recorded despite the gloomy conditions. Most notable were ten individuals of Dark Green Fritillary, on the county boundary. Moths included the Common Footman and Chimney Sweeper, while on Spindle were the webs of the micro-moth *Yponomeuta cagnalgella*. Peter Hatherley reported on a number of birds, including Yellow-hammer, Linnet, White-throat and in Pentridge village Spotted Fly-catcher (a Red Data Book species), which he feels is declining in east Dorset.

29 June 2007

Deadmoor Common and Alners Gorse

Four members arrived at 10.30am to a sharp shower as a reminder that in less than seven days the area had received 50mm of rain, nearly the 30-year average for June (Oliver 2007). This left the paths through the common with water standing on the thick orange clay so typical of the Blackmoor Vale so that areas such as this are unattractive to agriculture and become important areas for the region's biodiversity.

On entering the Common, the observer is greeted by dense Blackthorn, areas of mainly grey willow *(Salix cinerea* subsp. *oleifolia)* and oak–bramble woodland forming areas of NVC type W10, but bracken was only seen in the field hedge. Boundary banks and ditches not only in the hedges, but also in the woodland provided evidence of the old common rights. There are a small number of veteran oaks *(Q. robur)*, mainly pollarded showing the exercise of commoner's rights in the mature woodland to the north. Many of the oaks are 50–60 years old and it is suspected that the demise of rabbit grazing following the introduction of myxomatosis into Dorset from Somerset in July 1954 (Benham 1955) led to suitable conditions for their growth. Rabbit particularly favours the saplings of oak. This opportunity has allowed oak to be grown in a small number of places as standards in open areas to provide sunny positions essential for the Purple Hairstreak Butterfly (Asher *et al.* 2001). Just one specimen was found, lying in a puddle on the path, but still alive. Against the path in hedges, were many flowering bramble. These were a favoured nectaring place for hundreds of Meadow Brown and just three White Admiral butterflies. The habitat was just right for these beautiful black butterflies with a white band. The dense oak woodland areas contained some honeysuckle *(Lonicera periclymenum)* too shaded to flower. The larvae have a two stage feeding strategy in autumn and spring on the leaves of the honeysuckle (Asher *et al.* 2001). A third butterfly associated with open glades and sunny positions of oak woodland captured the interest of the party. The Silver-washed Fritillary was certainly present most of the morning. Typically of the Fritillaries in Britain, the presence of violets on the woodland floor is essential and here colonies of Wood Violet *(Viola riviniana)* are present. Again the semi-shaded habitat of the common provides suitable crevices in the oak and there is scattered moss on the trees, which also provides a suitable habitat usually 1–2m above the ground. In the spring, the larvae drop off the trees and feed on the violets.

Butterfly Conservation organise work parties to manage the Common on behalf of the owner. The agreed management aim is to maintain habitat mosaics of woodland and open areas. The open grassland areas provided some interesting examples of neutral grassland plants, which included Meadow Thistle *(Cirsium disectum)* (a plant more frequent in the east of the county (Bowen 2000); Tormentil *(Potentilla erecta)* was in most open grassland areas, together with Purple Moor-grass *(Molinia caerulea)* and Tufted Hair-grass *(Deschampsia cespitosa)* both of which require a low level of nitrogen (Hill *et al.* 2004). Bill Dicker commented that the patches of Wood Small-reed *(Calamgrosts epigejos)* are increasing within these areas. We wonder if this species, which requires higher nitrogen content, is growing in places where scrub has been burnt in the past. Another interesting plant found in the open areas was Dyer's Greenweed *(Genista tinctoria)*. This species likes low nitrogen and high light habitat. Devil's-bit Scabious *(Succisa pratensis);* a plant which likes a damp, but not wet, place with light but will tolerate reasonable shade and low nitrogen, was present and is being introduced by growing plants from seeds of local provenance into suitable places. This is the food plant for the Marsh Fritillary Butterfly, no longer recorded here, but there are hopes that the Common will attract migrants from the nearby large Rookmoor colony in the future. These open mire communities were ideal habitats for the Large Skipper, the occasional Essex Skipper, Five-spot Burnet Moth and Yellow Shell Moth. In addition to the twelve butterflies we noted the occasional Banded Demoselle *(Calopterix splendens)* and Common Hawker *(Aeschina juncea)*.

Returning to the woodland, Ash *(Fraxinus excelsior)* was common; we noted one area of Aspen *(Populus tremula)*, Alder Buckthorn *(Frangula alnus)* in the wet areas; Hazel *(Corylus avellena)* was scarce on dry ground and Field Maple *(Acer campestre)* was noted in the field boundary to the south. This area has been managed as wood pasture for centuries – a practice largely abandoned in marginal areas today.

For the afternoon session, we drove to Alners Gorse a Butterfly Conservation Reserve. In contrast to Deadmoor Common, Alners Gorse is not quite so wet. The Reserve consists of two distinctly different habitats. The southern portion was a meadow, and in 1971 the charitable trust who then owned the area planted many oaks, which are not happy in the wet ground. Fortunately a wide central ride was left for the interesting plants of the damp neutral grassland meadows. The woodland area to the north is bounded by Ridge Drove, which in spite of its name is not the highest ground of the locality. To the north of Alners Gorse is Rooksmoor Copse, together with areas of marshy grassland.

The mainly oak woodland to the north has been interplanted with various conifers. The south-west side is dense Blackthorn, which is being cleared progressively with some re-growth being managed to 1m by deer grazing. Once again dense bramble in flower attracted many butterflies including Comma, Meadow Brown and Silver-washed Fritillary. For the second time in the day, we observed

White Admiral butterflies, resting on this occasion on coniferous branches exposed to the warm sun. Several bushes of Buckthorn *(Rhamnus cathartica)* were found adjacent to the rides.

The neutral grassland of the rides gave some indication of the potential loss of area of herb rich NVC type MG5 meadow. The central pathway was bright yellow with Dyer's Greenweed. Pepper Saxifrage *(Silaum silaus)*, which likes plenty of light and low nitrogen levels (Hill *et al.* 2004) could be in danger of being shaded out if the oaks continue to grow. Bird's-foot Trefoil *(Lotus corniculatus)*, Sneeze-wort *Achillea ptarmica)* and Meadow-thistle also provided interest, together with Devil-bit Scabious. Again, Butterfly Conservation are hoping that Marsh Fritillary will return *via* Rooksmoor. Tormentil provides the food plant for larvae of Grizzled Skipper, which was not seen on the day.

The small party expressed thanks to Brian Dicker for his explanation of the management issues on both sites and to Patrick Constable for organising the day.

1 July 2007

Harbin's Park

Three members of the Society attended this meeting, which had been arranged in conjunction with Dorset Invertebrate Recording Group by Sean Cooch. Members assembled by Tarrant Gunville Church, taking the opportunity to view the flint-stone exterior with numerous stone carvings found on the mullioned windows. The Church is located in what is effectively a walled churchyard adjacent to Tarrant Gunville Manor.

Harbin's Park is located within Cranborne Chase and by using a combination of the Museum's Map collection and a series of aerial photographs dating from 1946, it has been possible to monitor the major changes and loss of parkland habitat since the Second World War. The park may be located on OS maps at ST 9013. Cantor and Wilson described Harbin's Park in 1964 as 'undoubtedly the best preserved of Dorset Parks'. Cantor also describes documentary evidence of the Park dating from 1279. The central area was cleared of wood since 1964, initially used as arable but is now sheep grazed pasture. In spite of the grazing, sapling ash and field maple were seen in the pasture, which if protected would form the basis of a parkland restoration. There have been other losses of woodland to agriculture. In one open glade, where the wood has been removed, we saw around 2000 Common Spotted-orchids *(Dactylorhiza fuchsii)* with some Southern Marsh-orchid *(D. praetermissa)* and the inevitable hybrids together with the seed heads of Early Purple-orchid *(D. purpurea)*. Another glade (about the size of a foot-ball pitch) only has around 18 species, being dominated by Erect Brome *(Bromus erectus)*.

Much of the woodland area surrounding the open area is dominated by recent Ash. However, mixed in the dense woodland are a number of coppice stools with a diameter up to 2m possibly 500 years or more old (Reed 1999) and a line of coppiced oak with one at 7m and another at 8.8m diameter. On the edge of one of the clearings was a veteran Field Maple supporting Mistletoe *(Viscum album)*. On the eastern park pale we found a Holly tree with a trunk girth of 2.41m. In addition to the orchids mention above, we saw Common Twayblade *(Listeria ovata)* and Broad-leaved Helleborine *(Epipactis helleborine)*.

Figure 6: Silver-washed Fritillary on Hogweed, Harbin's Park. © J.A. Newbould (2007)

Following a night of heavy rain, the sun shone providing plenty of warmth on the ride to the east of the park. Here, adjacent to areas of oak woodland, were numerous Silver-washed Fritillary. We saw ten fritillaries on one bramble bush. In addition, four other butterflies were seen during the morning, including Ringlet and many Meadow Brown.

21 July 2007

Ringstead

Arising on the Saturday morning to brilliant sunshine, I savoured a long walk and good day in the field to search for Chalk Carpet Moth on the Warren, east of White Nothe. Two of us decided to walk from Sutton Poyntz to the start, leaving at 9.00am. By the time we reached the Ridgeway, rain started spreading eastwards from Lyme Bay. Twenty minutes later north of Osmington, we had waterproof over-trousers on. The rain was so intense that we flushed a Skylark from the shelter of a Hawthorn on the Poxwell Drove. A few minutes after the start time, we reached the National Trust car park at Ringstead, pleased to have found a number of small areas of good quality chalk grassland amidst many acres of pasture. In spite of the rain, we recorded six species of common butterflies in six 1km squares including a single Wall on the Poxwell Drove. Amongst the birds noted were Goldfinch feeding on the many thistles and two sightings of Buzzard.

The meeting was abandoned before we started and the thoroughly soaked pair retreated to the café at Ringstead Bay for a hot cup of tea and cake, whilst we awaited transport back home. Ironically, the sun shone all afternoon.

28 July 2007

Down Farm, Pentridge, joint with Dorset Flora Group

Our new county flora group held its third field meeting on Saturday 28 June at Down Farm, near to Sixpenny Handley, with 23 members turning out for what proved a fascinating day on Martin Green's farm. He kindly gave us an introductory talk about the farm, where a number of recent initiatives are restoring biodiversity to this famous archaeological site. The main reason for our visit was to record the arable field flora in several valley fields, which have been cut for hay for 10 years without inputs; areas of these fields were ploughed in February 2007 but not sown.

The arable areas contained large populations of Field Poppy *(Papaver rhoeas)* and frequent Field Pansy *(Viola arvensis)*, but at first seemed to lack variety. However, other good finds emerged, among them Night-Flowering Catchfly *(Silene noctiflora)* and some small flowered specimens of Venus' looking glass *(Legousia hybrida)*. After some time here we moved on into the second area where we quickly found Blue Fleabane *(Erigeron acer)* and Small Toadflax *(Chaenorhinum minus)*, the latter thriving on the archaeologists' bare chalk scrapes. The flora in the arable areas beyond seemed slightly more diverse than in the first field; Dwarf Spurge *(Euphorbia exigua)* was common and Sun Spurge *(E. helioscopia)* occasional. Both Round-leaved Fluellen *(Kickxia spuria)* and Sharp-leaved Fluellen *(K. elatine)* were also found, unfortunately only the latter in flower.

Robin Walls led a group to the early prehistoric shaft in Fir Tree field, where Woad *(Isatis tinctoria)* had famously appeared during an earlier research dig. This species was accompanied by Basil Thyme *(Clinopodium arvensis)* and a number of other plants. The group then moved on to the remnant downland site on the river cliff, where a good flora was found. With continued management it is hoped that this will gradually recolonise suitable habitat nearby. In support of this aim Peter Hawes spent the day laying out and recording permanent quadrats on the henge monument found on Martin's land further to the north-east. This area already has good numbers of Felwort or Autumn Gentian *(Gentianella amarella)* and the intention is to continue recording the quadrats annually to monitor successional change.

After lunch, more time was found to enjoy the farm's varied attractions; Martin has a fascinating museum collection of his finds, and a wildlife pond and a recently planted woodland area were also of interest. The field trip ended at 4.30 with a vote of thanks to Martin Green for allowing us a privileged day and to Bryan Edwards, Robin and Peter for their able leadership. Thanks also to John Newbould for his support in publicising the meeting to DNHAS members and for leading the essential Health and Safety briefing.

Jonathan Crewe – Acting secretary DFG

In addition to the areas described above a number of us visited a small chalk bank on the farm, known locally as 'the cliff' on the north-east corner of the farm (see above). Here a good range of chalk grassland herbs formed mosaics of NVC types CG4 and CG7 grassland. This area escaped being converted to arable by the present owner's father. Here Quacking grass is mixed with Erect Brome along with patches of Thyme *(Thymus polita)* and Burnet Saxifrage *(Pimpinella saxifraga)*. A total of seven species of common butterfly were seen during the day. In an area with few hedges, I was able to locate the Handley parish boundary marker by the pumping station. 'Then to the Highway at the Quarry where Moss (B) grows.' (Grundy 1936). Here the area is now a damp grass hollow.

1 September 2007

Cranborne Common

Six members arrived to search Cranborne Common for Marsh Gentian *(Gentiana pneumonanthe)* a Red Data Least Concern category plant. The stronghold of this species is East Dorset, the Purbeck Heaths and the New Forest. Elsewhere, it is found on the Surrey heaths, Norfolk heaths e.g. Buxton Heath and the Yorkshire lowland heaths e.g. Skipworth Common (Preston *et al.* 2002). The plant requires good light, reasonably wet, acid pH (around 4) and low nitrogen (Hill *et al.* 2004). The plant is not on the national BAP list just published, but the *Red Data Book for Plants* (2005) suggests that we should 'watch this space'. Bryan Edwards of DERC had supplied us with some grid references and we set about searching rough terrain. It can survive a light burning, but one of the sites we listed was burned last year, and had no gentians. Two other sites, where we had hoped to find the plant were overgrown with Purple Moor-grass *(Molinia caerula)*. *Molinia* will do well with a slightly higher nitrogen and even lower pH than the gentian. In one area near Cow Bridge, we found over 100 gentians all in a narrow strip around 10m wide between the 65 and 70m contours. There were none here below 65m. They were found in lightly covered *Molinia* grassland with plenty of *Sphagnum*. Elsewhere we found smaller numbers in the open area of Cranborne Common. On the day, we found four areas in total. Two of the DERC sites were overgrown. Possibly with a larger party working a line, we would have found more. We have supplied DERC with ten-figure grid references for these plants.

Elsewhere during the day the need for regular botanical practice on these lowland heath sites came to the fore, when none of us could identify Water-purslane *(Lythrum portula)* in its classical habitat of damp mud in gateways on acid soils. (I resorted to Keble-Martin at home.) Autumn Lady's-tresses is quite widespread on the chalk in Dorset, but we had the pleasure of a rare find on dry heathy grassland with eleven spikes. Elsewhere this wet field was dominated by rush but had Sneezewort *(Achillea ptarmica)* and Devil's-bit *(Succisa pratensis)*. A wet area by Cow Bridge is best described by the NVC classification S23 *Other water-margin-vegetation*. Here the land varied from mud to shallow running water with Water Mint, Water Forget-me-not *(Myosotis scorpoides)* together with small areas of the Water Starwort *(Calitryche stagnalis)*, Ivy-leaved Water-crowfoot *(Ranunculus hederaceus)* and Lesser Spearwort *(R. flammula)*. The larger rushes were also present with Yorkshire Fog together with Floating Sweet-grass *(Glyceria fluitans)*. Elsewhere there were small areas of the NVC mire community M24 *Potentilla-erecta–Molinia caerula* community.

Finally we visited the open Dorset Heath areas of Cranborne Common dominated by heathers after forestry had been cleared. In the dry areas, the NVC type H2 *Calluna ulgaris–Ulex minor* heath was found while in damper areas the M16 *Erica tetralix* wet heath was present. In between were wet pools and wet areas with Bog Asphodel *(Narthecium ossifragum)*, a few Marsh Gentian, sundews *(Drosera intermedia* and *Drosera rotundifolia)* and White Beak-sedge *(Rhynchospora alba)*. We did not reach the area of an old record for *R. fusca*, which will be a job for 2008.

Walking back to the car through the pine plantations, we could not help seeing the native oak–birch woodland breaking through with Holly and Rowan. It certainly made me wonder about any economic gain from such planting and if with today's knowledge such woodland would be planted in the area today. We recorded only six species of butterfly in quite low numbers and very few birds.

3 September 2007

Portland – Freshwater Bay to God Nore

Two members turned up to continue recording Portland. Two earlier days in May and June were abandoned due to adverse weather. We decided to search the coastal path east of Southwell recording in 3 × 1km squares. Here there is a mix of low scrub, chiefly bramble, forming the NVC woodland community W24, with areas of good limestone grassland and also the maritime cliff communities MC1 *Crithmum maritimum–Spergularia rupicola* and MC11 *Festuca rubra–Daucus carota* ssp. *gummifer* communities.

We were rewarded with a number of the Dorset coastal specialities including Golden-samphire *(Inula crithmoides)*, Sea Lavender *Limonium recurvum* ssp *recurvum* at two of David Pearman's localities (Edwards and Pearman 2004). We did not venture down the cliff for ssp. *portlandicum* even though climbers were on hand. We even found just three Autumn Lady's-tresses in NVC type CG3 *Bromus erectus* grass. The wet summer meant that plants were not burnt out on Portland in the early autumn, unlike the past few years.

Once again it was disappointing to record only a few butterflies, including Wall, and very few birds. A Sparrowhawk was seen hunting on the cliffs, Rock Pippet and the increasing numbers of House Martin and Swallows feeding before commencing migration. We also found the remains of a seagull on a rock ledge typical of a Peregrine feed. Returning *via* the road through Southwell, we located Dwarf Elder *(Sambucus ebulus)* known from here since 1796 (Bowen 2002). A roadside verge had numerous Wild Clary *(Salvia verbenaca)* plants. We adjourned at lunchtime to the Chesil Cove Inn for fine crab sandwiches.

29 September 2007

Duncliffe Wood (Woodland Trust) ST 826 222.

Organised by Dorset Flora Group. Leader Andrew Branson

A total of 14 members of both Dorset and Hampshire flora groups met at the site on a very damp but not quite rainy day. Andrew Branson had arranged for us to park in a nearby property owned by Norman Heywood, Hon. Secretary of the Friends of Duncliffe Wood. We set off for the site in increasing drizzle, and attempts to manage a formal recording card were quickly abandoned in favour of a notebook. Fortunately Andrew's gifts as a teacher quickly helped us to forget the weather as he began to bring the diverse moss flora to life.

The first lesson appeared to be: look for ditches and banks, where variations in moisture and light levels create microhabitats suitable for a range of mosses. The first moss found was *Eurhynchium praelongum*, common feather-moss, and this was followed by *Hypnum cupressiforme*, cypress-leaved plait-moss. This species was more or less familiar to the novices but we quickly found that it has now been split into three separate species, and it is not quite as simple as we had hoped.

We moved on through the wood, which rolls around the contours of the land to give excellent views in good weather, although hard to observe on the day. Some time was spent looking at ferns and discussing the subspecies of *Dryopteris affinis* , scaly male-fern before returning to mosses. Andrew showed us some of the species found on the trunks of the ash and beech trees present in the wood. We also received a brief grounding in liverworts, just managing to make out the tiny form of *Microlejeunea ulicina*, fairy beads. A sighting of rather withered, Violet Helleborine *(Epipactis purpurea)* just before leaving the woodland was an incitement to return in the summer to look more thoroughly at the vascular plants as well as the bryophytes.

Norman Heywood very kindly gave us tea and biscuits and told us more about the wood and the work of the Friends group before we went our separate ways back into Dorset and Hampshire. Andrew Branson was thanked for an excellent introduction to woodland bryophytes, and a good finale to the group's first year.

Jonathan Crewe

Field Note

While driving north-east along the A354 Blandford Forum to Salisbury Road adjacent to Wyke Down, Jon and Sue Campbell and John Newbould were greatly surprised to find a Red Kite *(Milvus milvus)* flying above the road no more than 50m from our car. We were driving adjacent to Wyke Down (SO 0015) on the way to a County Boundary meeting at Bokerley Dyke on 6 June 2007. Its rufus colouring, together with the deeply forked tail was a sure indicator.

John Newbould

An archival copy of the records associated with this report has been deposited at Dorset Environmental Records Centre.

BIBLIOGRAPHY

Anon., 2007 *Hedgerow Survey Handbook*. 2nd edition Defra, London.

Asher, J., Warren, M., Fox, R., Harding, P., Jeffcoat, G. and J., 2001 *The Millennium Atlas of Butterflies in Britain and Ireland*. Oxford. University. Press, Oxford.

Bowen, H.J.M., 2000 *The Flora of Dorset*. Pisces Publications, Newbury.

Benham, E., 1955 'Mammal report (1954)', *Proceedings of the Dorset Natural History Society and Archaeological Society* **76**.

Cantor, L.M. and Wilson, J.D., 1964 'The mediaeval deer parks of Dorset, IV', *Proceedings of the Dorset Natural History Society and Archaeological Society* **87**, 170–2.

Collier, M., Banks, A., Austin, G., Girling T, Hearn, R. and Musgrove, A., 2005 *The Wetland Bird Survey 2003/04 Wildfowl and Wader Counts*. BTO, Thetford.

Davies, C., Shelly, J., Harding, P., McLean, I, Gardiner, R. and Pierson, G., 2004 *Freshwater Fishes in Britain*. Harley Books, Colchester.

Edwards, B. and Pearman, D.A., 2004 *Dorset Rare Plan Register*. DERC, Dorchester.

George, M., 1992 *The Land Use, Ecology and Conservation of Broadland*. Packard, Chichester.

Green, G., 2004 *The Birds of Dorset*. Christopher Helm, London.

Grime, J.P., Hodgson, J.G. and Hunt, R., 2007 *Comparative Plant Ecology*. Castlepoint Press, Dalbeatie.

Grundy, G.B., 1936 'Saxon Charters of Dorset (continued)', *Proceedings of the Dorset Natural History Society and Archaeological Society* **58**, 116–19.

Hill, M.O., Preston, C.D. and Roy, D.B., 2004 *Plantatt – Attributes of British and Irish Plants*. Centre for Ecology and Hydrology, Abbotts Ripton.

Oliver, J., 2007 'Dorset Rainfall 2006', *Proceeding of the Dorset Natural History Society and Archaeological Society* **128**, 141.

Olsen, L., Sunesen, J. and Pederson, B., 2001 *Small Freshwater Creatures*. Oxford University Press, Oxford.

Preston, C.D., Pearman, D.A. and Dines, T.D., 2002 *The New Atlas of the British and Irish Flora*. Oxford University Press, Oxford.

Rackham, O., 2003 *Ancient Woodland*. Castlepoint Press, Dalbeatie.

Redfern, M., Shirley, P. and Bloxham, M., *British Plant Galls*. F.S.C., Preston Montford.

Reed, H., 1999 *Veteran Trees: A guide to good management*. English Nature, Peterborough.

Rodwell, J.S. (ed.), 1991 *British Plant Communities I. Woodlands and Scrub*. Cambridge University Press, Cambridge.

Rodwell, J.S. (ed.), 1992 *British Plant Communities III. Grasslands and Montane Communities*. Cambridge University Press, Cambridge.

Thomas, J., Surry, R., Shreeves, B. and Steele, C., 1998 *New Atlas of Dorset Butterflies*, Dorset Natural History and Archaeological Society, Dorchester.

FARMLAND BIRD SURVEY 2007
Filcombe Farm, Golden Cap Estate

John Newbould

During a hedgerow survey conducted by Newbould in 2005 (Newbould 2006) the Red Data book species Yellowhammer *(Emberiza citrinella)* was recorded on three occasions in the Seatown area of Chideock parish. Subsequent to the hedgerow survey, Peter Hatherley accompanied the author to confirm the population size. In addition to the three observations of Yellowhammer, a further 27 birds were recorded during a single visit on 28 June 2005.

In early 2007, we decided to repeat the survey and, accompanied by Patrick Constable and Jon Campbell, we retraced the route of the 2005 survey on three further occasions. Starting from Filcombe Farm, we followed a path southwards surveying Filcombe Wood then skirting Golden Cap walking westwards. We ascended to the summit of Golden Cap and followed the footpath eastwards to Seatown, returning *via* Pettycrayte Lane and Black Covert, before returning to Filcombe Farm. On 29 March, on a cold day, the four of us recorded 28 birds; on 3 May, Patrick Constable and the author recorded a further 28 birds and the same two recorders repeated the visit on 6 September, recording 20 birds. For the visit on 11 December, Peter Hatherley, Jon Campbell and the author altered the methodology as PH had entered the tetrads SY49B and SY39W in the British Trust for Ornithology Atlas scheme. In SY49B from 9.45 to 10.45am, we walked from Filcombe Farm to Black Covert returning to Golden Cap and then on to St Gabriel's. From 10.45 to 11.45am, we walked westwards from St Gabriel's to Ridge Barn then northwards to Chardown Hill returning in an easterly direction to Upcot Farm in SY39W. From noon, we returned to the first tetrad, walking from Picket Post to St Gabriel's returning to Filcombe Farm using the footpath on the north side of St Gabriel's and Filcombe Wood. On this occasion PH recorded by tetrad for the BTO (i.e. two separate lists for SY49B and one list for SY39W, while JAN kept records by field compartments for this survey. On each occasion the number of birds seen or observed calling was recorded. On a cold frosty day, which followed a period of strong south-easterly winds and rain we recorded 23 birds in the two × one-hour sessions in SY49B and 15 birds in SY39W.

The tenant of Upcot Farm manages the area surveyed, with the majority of the land **MG6** *Lolium perenne – Cyanosuris cristatus* with smaller areas of **MG10** *Juncus effusus – Holcus lanatus* rush pasture (Rodwell 1992). Generally these have been cut for silage with winter aftermath grazing, mostly by cattle. There are quite large open fields, with the Dorset coastal path crossing much of the area surveyed. During the summer months there was much disturbance with many walkers accompanied by dogs. The undercliff rises from sea level at Seatown to over 100m at

Figure 7: The undercliff Golden Cap to Seatown.
© John Newbould 2007

Wear Cliffs on Golden Cap (Fig. 7). The vegetation of the cliff is mainly Silver Birch and Grey Willow scrub, with flushes dominated by Common Reed in gullies. The whole undercliff area is highly unstable with landslips creating bare ground, which favours a number of invertebrates.

The only arable field in the area is between fields137 and 138. In 2007 maize was grown. There are two small ponds adjacent to St Gabriel's. Both Golden Cap and Chardown Hill have Heather *(Calluna vulgaris)* and large areas of Bracken (NVC **W25**) and Gorse–Bramble (NVC **W23**). Autumn management has consisted of Bracken and scrub cutting with a small improvement in herb cover including Wood Violet *(Viola riviniana)*. Fields 80–81, below Golden Cap are short sward acid grassland grazed by cattle. Filcombe Wood is an ancient woodland base with a modern plantation containing wet areas of NVC type **W6** Alder wood together with NVC type **W10** – Oak–Birch (Rodwell 1991). The hedges are generally unmanaged, contain many veteran coppice stools and have been described in Newbould (2006). However, on Pettycrake Lane, the hedges are mounted on a substantial earth bank, are generally low and contain areas of European Gorse. The parish boundary hedges between Chideock and St Gabriel's are generally very old with the hedge to the south of field 129 providing over 50% of the bird records on the March visit. Significantly, on the September visit, we noted that the hedges contained plenty of ripe blackberry, sloes, holly and hawthorn fruit. On the December visit all the autumn fruit had gone and we noticed only one bush red with holly fruit.

The surveys involved eleven man-days and two days for reporting and preparing electronic lists for Dorset Environmental Records Centre. The list of 46 birds is contained in Table 1 and is approximately 17% of the total birds recorded in Dorset within a typical year. Of these, four birds *viz.* Skylark, Song Thrush, House Sparrow and Linnet are Red Data Book birds showing a rapid (=50%) decline in the UK breeding population over the last 25 years (JNCC 2004). In addition Skylark is considered to have an unfavourable conservation status in Europe. A further nine species are considered to be on the UK Amber (or birds of medium conservation concern) list. Twenty-eight per cent of the list contained species of conservation concern (Anon. nd) It was with considerable disappointment that in spite of extensive searching, we were unable to locate Yellowhammers.

Table 1: Golden Cap Estate Bird Report 2007

Bird	Status*	Comment	Management needs
Mallard *Anas platyrhynchos*		Two only on pond adjacent to St Gabriel's SY401928 (December)	
Common Pheasant *Phasianus colchicus*		Singles were seen adjacent to Filcombe Farm and Langdon Hill on spring visits	
Cormorant – *Phalacrocorax carbo*		Thirty birds were seen on the ledge east of Golden Cap (The Corner) on the September visit and a single flew west along Broom Cliff in December	The Dorset population mainly breeds on the Purbeck cliffs, but breeding has been noted near West Bay in 1986 (Boys 1972)
Grey Heron *Ardea cinerea*		A single bird flew east over the sea mobbed by Herring Gull towards Seatown on the March visit	
Sparrowhawk *Accipiter nisus*		A single bird was seen between Filcombe Farm and Langdon Hill in March and east of St Gabriels's in December	
Common Buzzard *Buteo buteo*		Two birds were hawking Golden Cap and Filcombe Wood in March and single birds seen in the area on each visit, except in December when the only sighting was over Westhay Farm	During the March visit, these birds were frequently mobbed by crows
Kestrel – *Falco tinnunculus*	Amber	A single bird was seen in the St Gabriel's area in September and December	
Herring Gull – *Larus argentatus argenteus*		Low numbers feed in the larger pastures	
Wood Pigeon *Columba palumbus*		Low numbers are associated with the woodland areas	
Short-eared Owl *Asio flammeus*	Amber	Jon Campbell spotted a single bird near Ridge Barn SY 391 928. We disturbed this bird in bracken adjacent to a hedge at midday on 11 December. The bird is an uncommon passage migrant and winter visitor. Most Dorset records are from coastal locations usually numbering one or two birds	As the bird winters in southern Europe and North Africa, this species may start taking advantage of warmer winters
Green Woodpecker *Picus viridus*	Amber	A single bird was seen on the May visit on the south side of Filcombe Wood	Requires a short grass sward with rich ant populations
Great Spotted Woodpecker – *Dendrocopus major*		One recorded on the parish boundary south of Filcombe Wood on 3 May	
Skylark – *Alauda arvensis*	BDp SPEC	A single bird was singing over the undercliff south of Golden Cap on the May visit and one on Golden Cap during the March visit. None were observed during the 2005 surveys	This species prefers the shorter drier turf of the chalk grasslands. Many of the fields in the area do not have tall rank grassland and should be suitable
Swallow – *Hirundo rustica*		The spring migration started in Dorset just after our March visit. Three pairs were breeding at Filcombe Farm barn in May. During the September visit a flock of around 100 birds spent the morning feeding around Filcombe Farm, Golden Cap and the undercliff	Access to roof space in the barns
House Martin – *Delichon urbica*		Around 120 birds mixed with the Swallows on the September visit and moved off together around 13.00	
Meadow Pipit – *Anthus pratensis*	Amber	Small numbers of birds were associated with Golden Cap, the undercliff and adjacent meadows on the spring visits. In December, we noted a few birds near Upcot Farm	
Pied Wagtail – *Motacilla alba yarrellii*		Single birds were seen on most visits associated with Filcombe Farm	
Wren – *Troglodytes troglodytes*		Usually one or two birds were observed on each visit in many of the hedges and woods associated with the survey area	
Dunnock – *Prunella modularis*	Amber	One or two birds were associated with hedges and scrub on most visits, but always less than ten birds in total. None were seen in the western tetrad in December	Green (2004) comments that peak counts rarely exceed 60

Bird	Status*	Comment	Management needs
Robin – *Erithacus rubecula*		From a low count of three on our first visit, there were nine birds on the December visit in the eastern tetrad and 11 birds in the western tetrad	Juvenile seen feeding on Bramble along Pettycrayte Lane in September.
Common Stonechat – *Saxicola torquata*	Amber	One pair was recorded on the May visit associated with the fence and undercliff south of field 138	Green (2004) maps this species in west Dorset only along the coast. Golden Cap and the undercliff provide plenty of suitable perches
Northern Wheatear – *Oenanthe oenanthe*		We had a single record of three birds on Golden Cap on 3 May. Green only shows records from nine tetrads in Dorset	Breeds in grassy open areas in cavities between boulders or in walls (JNCC 2004)
Blackbird – *Turdus merula*		The most common bird of our survey, which undoubtedly breeds in Filcombe Wood where ten birds were recorded in May	
Song Thrush – *Turdus philomelos*	BDp	Single birds were recorded on most visits from Filcombe Wood, on one occasion from Seahill Lane, the undercliff near Seatown, Filcombe Farm and St Gabriel's	
Redwing – *Turdus iliacus*	Amber	Ten birds were recorded in field 124, to the west of Filcombe Farm on 11 December associated with two Mistle Trush	
Mistle Thrush – *Turdus viscivorus*	Amber	Two birds were recorded on each visit in the area of Filcombe Farm and Filcombe Wood	
Whitethroat – *Sylvia communis*		A total of six birds were recorded on the visit of 3 May associated with scrub between Filcombe Farm and Seatown. These birds are likely to be associated with the spring migration	This species is usually found in Gorse/Bramble habitat (NVC type W23) of which only a small area is found on Golden Cap
Blackcap – *Sylvia atricapilla*		A total of five birds were recorded on the visit of 3 May associated with scrub between Filcombe Farm and Seatown. These birds are likely to be associated with the spring migration	
Common Chiff-chaff – *Phylloscopus collybitta*		A total of nine birds were recorded on 29 March reflecting the spring migration. Singles were recorded on subsequent summer and autumn visits	
Willow Warbler – *Phylloscopus ibericus*		Just one bird was recorded in field 138 on 3 May reflecting the spring migration	
Goldcrest – *Regulus regulus*	Amber	Jon Campbell spotted two birds in a wooded area just west of St Gabriel's on 11 December. It is uncommon on the Dorset coast preferring coniferous and mixed woodlands as well as parks and gardens	The bird is vulnerable to cold with the sheltered coombes adjacent to St Gabriel's providing shelter from harsh winter frosts and cold south easterly winds prevailing earlier in the week (Green 2004)
Long-tailed Tit – *Aegithalos caudatus*		A single bird was noted at Filcombe Farm on 6 September and again on 11 December together with a further single at St Gabriel's	
Coal Tit – *Parus ater*		One pair was recorded in the old parish boundary hedge, east of Golden Cap on 29 March	
Blue Tit – *Parus caeruleus*		Single birds were recorded at a number of points in the eastern tetrad only in scrub	
Great Tit – *Parus major*		Pairs were recorded at a single point on each visit in the eastern tetrad only	
Eurasian Jay – *Garrulus glandarius*		A woodland bird associated with oak trees but only one record from St Gabriel's Wood in December	
Magpie – *Pica pica*		A maximum of three birds in the Filcombe Farm area were seen on the March visit with none in May or September. It is an uncommon bird on the estate	
Eurasian Jackdaw – *Corvus monedula*		A maximum of four birds were seen in the Filcombe Farm area on the March and December visits	
Rook – *Corvus frugilegus*		A maximum of five birds were seen in the Filcombe Farm area on the March visit. It does not appear to be breeding on the estate	

Bird	Status*	Comment	Management needs
Carrion Crow – *Corvus corone*		A maximum count of 11 birds was noted on 11 December associated with grassland used for silage and winter grazing east of Filcombe Farm	
Common Raven – *Corvus corax*		A pair was noted at Filcombe Farm on 6 September and at Chardowh Hill on 11 December	
House Sparrow – *Passer domesticus*		Two or three birds were recorded in the hedges associated with Filcombe Farm buildings on each visit. On 11 December Upcot Farm had at least 20 birds at midday following a hard frost the previous evening	Continual monitoring. Square recording does not reveal the decline of this species
Common Chaffinch – *Fringilla coelebs*		We observed two or three birds on occasions during each visit until December when small parties of winter migrants were seen associated with scrub on Golden Cap and at Upcot Farm	
Greenfinch – *Carduelis chloris*		A maximum of ten were recorded in Filcombe Wood on 3 May	
Goldfinch – *Carduelis carduelis*	Amber	A single Goldfinch was recorded at Filcombe Farm in September. There are few thistles on the estate	
Linnet – *Carduelis cannabina*	BDp	Three birds were noted on Golden Cap and eight on Pettycrayte Lane in March, but we felt that one pair was breeding on the undercliff to the east of Golden Cap. In May the survey showed a total of ten birds in the area south of Pettycrayte Lane.The September and December surveys scored no birds in the eastern tetrad, but Peter Hatherley recorded two birds flying east at Upcot Farm	The birds nest in scrub or hedgerows but may feed up to 1km away on seeds from agricultural weeds or oil seed rape. There is only one arable field on the estate (JNCC 2004)

* JNCC Status: Amber = Amber list bird; Red List: BDp = rapid (=50%) decline in UK breeding population over last 25 years; SPEC is a species with an unfavourable conservation status in Europe. UK population >10,000 birds

Discussion

In 2005, the 28 birds noted were recorded during a 5km circuit during 200 minutes. Three singing male Yellowhammers were seen, but the lush hedgerows prevented further detail. The 2005 absentees, in particular Skylark, Swift and Stonechat were perhaps more important to note than the numbers of species present, which were unremarkable. In 2007, we did locate Stonechat and Skylark, but not Swift. We also failed to record Collared Dove and Black-backed Gull from the 2005 survey, but these species are not significant in conservation terms. The absence of Fieldfare was disappointing.

The Yellowhammers were all recorded to the west of Seatown, in an area adjacent to the only arable plot within the part of the National Trust estate surveyed. These observations were in line with a study by Whittingham *et al.* (2005), which concluded that within the limitations of a small survey Yellowhammer not only needs boundary strips, tall hedges with ditches and trees, but proximity to winter set-a-side fields. However, with maize the crop in 2007, the late harvesting, larger seeds and the ability of maize to dominate an arable field the absence of Yellowhammer is not surprising.

Comments in Table 1 on a species presence in Dorset are referred to Green (2004) and Boys (1972). For an area such as the Golden Cap estate, designated SSSI as long ago as 1952 and renotified in 1982, there will have been considerable physical and ecological change. A survey, such as this, in spite of its limitations is invaluable in forming a base line of current species. After-all, the 1990 *Red Data Birds in Britain* (Batten *et al.* 1990) did not mention any of the estate's red data birds of 2007. Common Standards Monitoring guidance for birds (JNCC 2004) recommends that three annual counts be undertaken in a six-year reporting cycle. The survey will continue in 2008 to complete the BTO mapping scheme. One important limitation of the survey is that generally we have not indicated activity, e.g. flying, perching or calling, nor did we start the survey just after sunrise to detect breeding birds. We have, however, delimited territory (Hill *et al.* 2005)

The importance of identifying landscape features, which support viable populations of priority species supports the survey methods used by the group in this survey over the tetrad mapping of the BTO survey. Early and Thomas (2007) recommend that estate planning 'should incorporate an understanding of population processes to identify areas likely to support persistent populations'. Defra have set various targets for hedgerow management (Anon. 2007). Hedge management may affect bird populations. A well-trimmed hedge will not flower or fruit as well as a hedge left to grow and severe trimming will reduce the capacity for a hedge to hold nesting birds. Hedges that are leggy as a result of animal grazing into the base (e.g. the boundary hedge in field 129), are poor for nesting birds (Hill *et al.* 2005).

Acknowledgements

In undertaking this study, I record my thanks to Peter Hatherley, Patrick Constable and Jon Campbell whose

bird-watching skills far exceed my own, to Rob Rhodes of the National Trust for arranging access and Dorset Environmental Records Centre for archiving our data.

BIBLIOGRAPHY

Anon, www.jncc.gov.uk

Anon., 2007 *Hedgerow Survey Handbook: a standard procedure for local surveys in the UK.* Defra, London.

Batten, L.A., Bibby, C.J., Clement, P., Elliott, G.D. and Porter, R.F., 1990 *Red Data Birds in Britain.* T & A.D. Poyser, London

Boys, J.V., 1972 *Checklist of Dorset Birds.* DNHAS, Dorchester.

Early, R. and Thomas, C.D., 'Multispecies conservation planning: identifying landscapes for the conservation of viable populations using local and continental species priorities', *Journal of Applied Ecology* **44** B.E.S, London.

Green, G., 2004 *The Birds of Dorset.* Christopher Helm, London

Hill, D., Fasham, M., Tucker M,. Shewry, M. and Shaw, P., 2005 *Handbook of Biodiversity Methods.* CUP, Cambridge.

JNCC, 2004 *Common Standards Monitoring for Birds.* Peterborough.

Newbould, J.A., 2006 'Southwest Dorset Hedges 2 – a survey of The National Trusts' Golden Cap Estate', *Proceedings of the Dorset Natural History and Archaeological Society* **127**, 111–23.

Rodwell, J.S. (ed.), 1991 *British Plant Communities I. Woodlands and Scrub.* Cambridge University Press, Cambridge.

Rodwell, J.S. (ed.), 1992 *British Plant Communities III. Grasslands and Montane Communities.* Cambridge University Press, Cambridge.

Whittingham, M.J., Swetman, R.D., Wilson, J.D., Chamberlain, D.E. and Freckleton, R.P., 2005 'Habitat selection by yellowhammer *(Emberiza citrinella)* on lowland farmland at two spatial scales: implications for conservation management', *Journal of Applied Ecology* **42,** B.E.S, London.

SOUTHWEST DORSET HEDGES (3): a survey of the National Trust's Golden Cap Estate north of Muddyford Lane, Stanton St Gabriel's

John Newbould

Introduction

One of the national biodiversity action plans covers ancient and/or species-rich hedgerows. The action plan (Anon. 1995) defines ancient hedges as those in existence before the Enclosure Acts mainly passed between 1720 and 1840. Species-rich hedges are those, which contain five or more native woody species in a 30m length (in the south of England.) Hedges with fewer woody species, but have a herb rich verge are included in the action plan.

In May 2007 (Mountford and Stachan) JNCC recommended that 'Priority hedgerows should be those comprising 80% or more cover of any native tree/shrub species. This does not include archaeophytes and sycamore. For the purposes of the UK BAP "native" will not be defined further; it will be left up to the Countries to provide guidance on this as they consider appropriate.' Preston *et al.* (2002) define an archaeotype as species that are present in the wild as naturalised populations. They may be spreading vegetatively or reproduce by seed and are considered to have been naturalised before 1500 AD. Neophytes, on the other hand, were introduced after 1500 AD or were present only as a casual.

The survey resulted from a recommendation in the 1996 biological survey of the estate (Lister and Foster 1996). Papworth (2000) recommended 'that a hedge conservation policy is formulated that will ensure that each of the hedge boundaries on the Estate is conserved with its species diversity'. The area was surveyed during May and June 2007 and is a continuation of the survey reported in the Dorset Proceedings **127** (2005)

The area surveyed (Fig. 8)

The National Trust's Golden Cap estate is located to the north of the Dorset and East Devon Coast World Heritage site in West Dorset District. The study area is in the Wessex Vales Natural Area (Anon. 1999) and part of the West Dorset Heritage Coast. The area was designated SSSI under the 1949 Act in 1952 and re-notified under the 1982 Wildlife and Countryside Act in 1991. The area surveyed is part of the Golden Cap Estate, stretching from Eypes Mouth in the east to Stonebarrow in the west. Data are reported from part of the parish of Stanton St Gabriel's, north of Muddyford Lane from National Trust owned land; including parts of Norchard Farm, Shedbush Farm and Ship Farm. The more northern areas in Catherston Leweston, and Whitechurch Cancorum parishes are not included in this survey. The whole property has two Grade II listed buildings and 15 Scheduled Ancient Monuments, mostly Bronze Age to Saxon Barrows (Papworth 2000). Each site of archaeological importance has a unique National Trust/Dorset County Council reference number, which within this report will commence with 113xxx. The vernacular sites are numbered 111xxx. The whole estate covers 1011 hectares and stretches for 13km along the Heritage Coast.

The countryside is undulating with high points, e.g. Mortcombelake. There are numerous coombes and valleys with the land rising to the north typically to 194m at Chardown Hill. The majority of fields are used principally as pasture. Hay meadows are declining, together with species diversity. Examination of the tithe maps and associated registers, together with other historical documents, shows that many of the fields have at one time or another been in arable production, with the switch between arable and pasture depending on the economics of agriculture at the time. The farms have little woodland, but there are a number of small copses. A botanical survey of the estate was undertaken in 1995 (Lister and Foster 1996) and an opportunity arose to update the information on 25 fields (14% of the total) was taken in the spring of 2007. Lister describes the property as having 162 enclosed fields. Of these 50 were graded 2 or better. Within the farms of the 2007 survey just two fields were judged G2 or better. These unimproved grassland areas are scarce in Britain with <10,000 ha remaining in England (Anon. 1995) and 1579 ha considered remaining in Dorset (Anon. 2002). A spring originates to the north-west of Shedbush Farm, drains south below Muddyford Lane *via* Norchard Farm to St Gabriel's where it joins a second spring originating in Morecombelake and then drains into Lyme Bay at St Gabriel's Mouth. This has resulted in six fields having areas of rush pasture, two of which were judged G1 (i.e. potentially SSSI standard).

Methodology

In this survey, Newbould followed a methodology used by Button in a re-survey of Professor Good's Botanical Survey of Dorset hedges (Button 2003). The methodology follows a standard procedure for hedgerow surveys in the UK devised by Catherine Bickmore Associates (Bickmore 2002), recording 30m lengths of hedge as modified in the 2007 guidance (Anon. 2007). However extra data were collected in this survey on hedge margins, collecting all hedge

Figure 8: The hedges adjacent to Norchard Farm May 2007 © J.A. Newbould

Figure 9: A hedge dominated by Holly June 2007. © J.A. Newbould

bottom higher plant species in the 30m length. In other published surveys, *The Countryside Survey* (1999) used 10 × 1m linear lengths for field boundaries, hedges, water-courses and tracks. Boatman (2001) in a survey of East Yorkshire hedges recorded the species present in each of 12 contiguous lengths of 10m in order to obtain an average value for the number of species present in 30m lengths. In contrast to the Osmington Survey (Newbould 2005), the hedges of the Golden Cap Estate contained a number of old trees. These were recorded on special veteran tree recording forms to meet the criteria devised by Key (1998, 31–34), as the data collected could assist in estimating the age of a hedge. As part of the biodiversity quality indicators, birds and butterflies associated with the hedges were noted separately.

Woody species were recorded separately: (i) trees, by number present in the hedge and (ii) scrub species were scored using domin scales. The data collected included the presence of hedge-banks, associated land use; management issues e.g. the presence of fencing and the type and frequency of any hedge management. Data were also collected on the hedge heights and widths. At each point the national grid reference was noted using a GPS meter in order that the survey may be repeated in the future. In total, 31 hedges and hedge banks, from SY 4093 square and the eastern margin of SY 3993 were surveyed from 23 May to 7 June 2007, making three visits. Data were analysed, initially by parish, using a Microsoft Excel ™ spreadsheet.

Survey results

The total of 18 species (see Table 1: neophytes are coded [1] and archaeotypes are coded [2]) and compares with 28 species found in the 2005 Golden Cap Survey; 21 species found in the Osmington survey of 2004 (Newbould 2004). It may also be compared with two smaller Dorset surveys. Newbould (2003) reported on a sample of 15 hedges from the Corscombe parish where 20 species were recorded and Bartet (2001) recorded 31 species from a sample of 27 hedges in the Cerne Abbas parish. In Boatman's sample (1980) of 117 hedges from East Yorkshire, 32 species were recorded. A total of 45 hedges had trees with 10 species recorded. This resulted in just one additional woody species recorded. Bracken, Ivy, Honeysuckle and Bramble were excluded from the count. Two samples were dominated by Bracken, which is classified as a woodland plant community (type W25) in the National Vegetation Survey (Rodwell 1991). The location, by parish, of the tree species is shown in Table 2.

Although maiden trees form an important pictorial concept as part of hedges in the British countryside, most people, do not look closely enough at past management practice. It is by measurement of not only maiden trees, but also pollards and coppice stools that help to identify truly old hedges.

Read (2000), defines a veteran tree as one which is 'of interest biologically, culturally or aesthetically because of its size, age or condition'. She cautions that girth size is not a reliable factor because different species and individual trees have different life spans and grow at different rates. Important factors are competition from other trees for light or moisture, grazing pressure, and woodland management practices. The nature of the soil and underlying geology may be important. In relation to diameter, she advises that an oak with a diameter at breast height of 1m is potentially interesting; one with a diameter of 1.5m is valuable in terms of conservation. A tree with a diameter greater than 2.0m is considered truly ancient. Defra (Anon. 2007) have provided a list of trees and associated sizes giving guidance on interesting, veteran and truly ancient. Rackham (2003) defines a veteran tree as one which is too old to constitute timber: the same as an *ancient* tree providing that (i) the meaning of 'ancient' varies with the species of a tree and (ii) coppice stools do not count as ancient trees, whereas pollards do. Read advises that an ash stool measuring 2m is around 500 years old. On the other hand Rackham (2006) suggests that a stool measuring 1m accounts for around 400 years and 2m around 800 years.

In interpreting the results, *Rosa canina*, the rose was split no further than section Caninae, elm is very difficult to identify but appeared to the author to be nearest to *Ulmus procera* and the willows were all identified to subspecies.

In this survey, 4 species were observed to provide woody cover of more than 76% of the 30m samples (i.e. a score of nine or ten measured by Domin). This situation occurred

Table 1: Woody species recorded in the hedges

Species		Recorded in no. of hedges					
Scientific name	**English name**	**St Gabriel's 2007**	**St Gabriel's**	**Chideock (west)**	**Chideock (east)**	**Symondsbury**	**Total**
Acer campestre	Field Maple	6	17	16	4	4	47
A. pseudoplatanus	Sycamore[1]	3	5	3	2	2	15
Alnus glutinosa	Alder	4	5	1	-	-	10
Castanea sativa	Sweet Chestnut[2]	–	1	–	–	–	1
Cornus sanguinea	Dogwood	–	–	1	–	–	1
Corylus avellana	Hazel	28	23	24	–	3	78
Crataegus monogyna	Hawthorn	19	51	25	20	17	132
Cytisus scoparius	Broom	–	1	–	–	–	1
Fagus sylvatica	Beech	–	2	–	–	–	2
Frangula alnus	Alder Buckthorn	1	–	–	–	–	1
Fraxinus excelsior	Ash	12	21	9	6	8	56
Hedera helix	Ivy	1	11	7	–	2	21
Ilex aquifolium	Holly	22	34	24	2	5	87
Lonicera periclymenum	Honeysuckle	8	10	13	2	1	34
Malus domestica	Apple	–	–	1	–	–	1
Malus sylvestris	Crab Apple	1	6	2	–	–	9
Prunus domestica	Greengage[2]	1	4	1	1	1	10
Prunus cerasifera	Cherry Plum	–	1	2	–	–	3
Prunus spinosa	Blackthorn	7	52	29	10	20	118
Quercus robur	Pedunculate Oak	5	22	11	4	–	42
Rosa arvensis	Field Rose	–	3	1	–	–	4
Rosa canina	Dog Rose	4	15	4	–	2	25
Rubus fruticosus	Bramble	22	38	19	19	12	110
Rubus caesius	Dewberry	1	1	–	–	–	2
Salix aurita	Eared-willow	1	5	1	1	–	8
S. caprea	Goat Willow	–	1	1	–	–	2
S. cinerea ssp. *cineria*	Grey Willow	5	27	7	8	–	47
S. cineria ssp. *oleifolia*	Grey Willow	9	5	3	–	–	17
S. viminalis	Osier[2]	–	2	–	–	–	2
Sambucus nigra	Elder	10	22	14	13	20	79
Ulmus procera	English Elm	–	4	1	1	3	9
Ulex europaeus	Gorse	1	11	4	4	3	23
Viburnum lantana	Wayfaring Tree	1	–	–	–	–	1
Viburnum opulus	Guelder Rose		3	–	–	–	3
Total species		18	26	20	13	12	30
Hedges surveyed		31	72	46	29	34	212

Count excludes: Ivy Bramble, Dewberry and Honeysuckle

Table 2: Veteran trees recorded in hedges, by parish

Species	St Gabriel's 2007	St Gabriel's	Chideock (west)	Chideock (east)	Symondsbury	Total
Acer campestre	–	–	1	1	–	2
A. pseudoplatanus	–	1	–	1	3	5
Aesculus hippocastanum	–	–	–	1	–	1
Alnus glutinosa	4	–	–	3	–	3
Betula pendula	–	3	–	–	–	3
Castanea sativa	–	2	–	–	–	2
Fagus sylvatica	–	1	–	–	1	2
Fraxinus excelsior	9	1	3	1	–	5
Malus domestica	–	–	1	–	–	1
Quercus ilex[1]	1	–	–	–	–	1
Quercus petraea	2	–	–	–	–	2
Quercus robur	17	11	9	1	–	21
Total	33	19	14	8	4	78

Table 3: Trees measured during the 2007 survey

	Max. diameter in metres*	No. measured	Range	Truly ancient*	No. of trees as maiden or pollards**
Acer campestre	0.96	1	1m	0.60m	–
Castanea sativa	–	–	–	1.99m–	–
Crataegus monogyna	0.96	3	<1.4m	0.60m	2
Fraxinus excelsior	1.91	6	1.0–2.1m	1.19m	2
Ilex aquifolium	0.57	11	0.4–3.10m	0.36m	3
Quercus robur	3.18	7	1m–3.2m	1.99m–	5

* Hedgerow Survey Handbook 2nd edition (Anon. 2007) Defra, London
** The balance is coppice stools.

Table 4: Frequency and cover of the woody hedge species in the 2007 survey

Species		Max. domin	Min. domin	Frequency	National frequency
Acer campestre	Field Maple	7	4	I	I
A. pseudoplatanus	Sycamore	10	4	I	–
Alnus glutinosa	Alder	7	4	I	I
Corylus avellana	Hazel	10	4	V	IV
Crataegus monogyna	Hawthorn	7	4	IV	V
Fraxinus excelsior	Ash	7	4	II	II
Hedera helix	Ivy*	4	4	I	II
Ilex aquifolium	Holly	7	4	IV	I
Malus sylvestris	Crab Apple	5	5	I	I
Prunus domestica	Greengage	5	5	I	–
Prunus spinosa	Blackthorn	7	4	II	IV
Quercus robur	Pedunculate Oak	5	4	I	I
Rosa canina	Dog Rose	4	4	II	II
Rubus fruticosus	Bramble*	10	4	IV	–
Rubus caesius	Dewberry*	4	4	I	–
Salix aurita	Eared-willow	4	4	I	I
S. cinerea ssp. *cineria*	Grey Willow	7	4	I	I
S. cinerea ssp. *oleifolia*	Grey Willow	10	5	II	I
Sambucus nigra	Elder	7	4	II	II
Ulmus procera	English Elm	4	4	I	–
Ulex europaeus	Gorse	6	6	I	I
Viburnum opulus	Guelder Rose	4	4	I	I
Total species	*Excluded from count			19	
No. of hedges surveyed				31	

Note: Domin is an expression of estimated cover on the following scale 10= (91:100%); 9= (76–90%); 8= (51–75%); 7= (34–50%); 6= (26–33%); 5= (11–25%); 4= (4–10%) 3, 2, 1 =<4%
Frequency reflects how often a species is found in a data set. Using the convention adopted by the National Vegetation Classification (Rodwell 1991), frequency is scored I:1–20%, II: 21–40%; III: 41–60%; IV: 61–80% and V: 81–100%

Table 5: Species count in the sample of 181 hedges. (Ivy, Honeysuckle, Bracken and Bramble were excluded from the count)

No. of species	St Gabriel's 2007	St Gabriel's	Chideock (west)	Chideock (east)	Symondsbury	Total
One shrub	1	6	2	7	1	17
Two shrubs	1	1	12	5	4	23
Three shrubs	4	6	12	9	13	44
Four shrubs	7	19	6	6	9	47
Five shrubs	8	17	2	2	12	41
Six shrubs	4	12	–	–	5	21
Seven shrubs	4	8	–	–	2	14
Eight shrubs	2	2	–	–	–	4
Nine shrubs	–	1	–	–	–	1
Ten shrubs	–	–	–	–	–	–
Total	31	72	34	29	46	214
Total hedges >5 species	18	40	2	2	19	81

Table 6: National Vegetation Categories of the Hedges (Rodwell 1991 and Mortimer *et al.* (2000)

Community	NVC no.	By location					Total
		St Gabriel's 2007	St Gabriel's	Chideock (west)	Chideock (east)	Symondsbury	
Salix cineria–Galium palustre	W1	9	4	2	2	1	9
Alnus glutinosa–Urtica dioica	W6	4	2	1	2	–	5
Fraxinus excelsior–Acer campestre–Mercurialis perennis	W8	9	30	18	5	7	60
Quercus robur-Pteridium aquilinum–Rubus fruticosus	W10	3	3	–		–	3
Fagus sylvatica–Rubus fruticosus	W14		1	–		–	1
Crataegus monogyna–Hedera helix	W21	2	8	13	6	4	31
Prunus spinosa–Rubus fruticosus	W22	4	23	10	7	12	52
Ulex europaeus–Rubus fruticosus	W23		1	1	2	2	6
Rubus futicosus–Holcus lanatus	W24		–	1	2	1	4
Sambucus nigra–Urtica dioica (Mortimer 2000)			–	1	2	7	10
Total		31	72	47	28	34	214
Pteridium aquilinum–Rubus fruticosus	W25		–	–	2	–	2
No. woody species on hedge bank			–	–	1	–	1
Total		31	72	47	31	34	215

Table 7: Dominant woody species distribution by parish

Species	St Gabriel's 2007	St Gabriel's	Chideock (west)	Chideock (east)	Symondsbury	Total
Acer campestre	–	–	–	1	–	1
A. pseudoplatanus	1					
Corylus avellana	1	–	2	–	–	2
Crataegus monogyna	–	1	2	–	–	3
Fraxinus excelsior	–	–	–	1	1	2
Ilex aquifolium	–	2	–	–	–	2
Prunus spinosa	–	7	1	1	4	13
Quercus robur	–	–	–	1	–	1
Salix cineria ssp *cineria*	–	1	1	–	–	2
Salix cineria ssp *oleifolia*	3	2	2	–	1	5
Sambucus nigra	–	–	–	1	3	4
Ulmus procera	–	–	–	1	1	2
Ulex europaeus	–	–	–	–	1	1
Total	5	13	8	6	10	38
Rubus fruticosus	2	9	3	–	1	13

in 5 (16%) of the total sample (see Table 7). Of this sample, Grey Willow was the dominant species in 3 cases.

In addition to the Bramble, Honeysuckle and Ivy, the following climbing plants were recorded: White Bryony *(Bryonica dioica)* (4 hedges); Woody Nightshade *(Solanum dulcamara)* (3 hedges) and Black Bryony *(Tamus communis)* (3 hedges).

In each case the principal National Vegetation Community of the verge was noted by practised eye using the methodology described above. The results are illustrated in Table 8. In contrast with the Osmington survey (Newbould 2005) where just 7 hedges (9%) had a ground flora plant normally associated with woods or hedges and the Earlier Golden Cap survey, where 138 (75%) of the hedges had such plants, this survey had no hedges with a truly woodland ground flora, although Bluebell and Dog's Mercury was noted in four cases each. In contrast with the earlier survey where Greater Stitchwort and Hedge Bedstraw were common, here both species were only recorded once, whereas Greater Stitchwort *(Stellaria holostea)* in 64 hedges in the 2005 survey. Ransoms *(Allium ursinum)* was found in only one hedge associated with a streamside or damp bank.

Twelve hedges (39%) were associated with wet ditches or streams. Six hedges (19%) against nine (5%) in the 2005 survey had the locally frequent Corky-fruited Water-dropwort *(Oenanthe pimpinelloides)* (Bowen 2000). Although Stinging Nettle *(Urtica dioica)* was recorded in 20 (65%) [115 (63%) in the 2005 survey] of the samples, only five hedges had nettle-dominated plant communities. This could well be due to the lower part of the fence being net-

Table 8: National Vegetation Categories of the hedge verges by parish

Community	Ellen. value*	NVC no.**	St Gabriel's 2007	St Gabriel's	Chideock (west)	Chideock (east)	Symondsbury	Total
Fraxinus excelsior-Acer campestre–Mercurialis perennis	7	W8	-	1	11	-	1	13
Rubus fruticosus–Holcus lanatus	6	W24	4	8	3	-	1	12
Pteridium aquilinum–Rubus fruticosus	6	W25	1	10	3	6	-	19
Arrhenatherum elatius	7	MG1	13	33	14	5	16	68
Cyanosurus cristatus–Centaurea nigra	5	MG5	–	6	–	–	–	6
Holcus lanatus–Juncus effusus	5	MG10	5	8	–	7	–	15
Festuca ovina–Agrostis capillaris–Galium saxatile		U4		–	–	3	-	3
Urtica dioica–Galium aparine	8	OV24	4	3	9	5	16	33
Urtica dioica–Cirsium arvense	8	OV25	1	1	3	3	–	7
Phagmites australis–Urtica dioica	7	S26	–	1	1	1	–	3
Total			28	71	44	30	34	179
Not scored			3	1	3	1	–	5
Total			31	72	47	31	34	184

* Ellen. value = Ellenberg value for Nitrogen
** Rodwell 1991; 1992; 1995; 2000

ted, preventing sheep sheltering in the hedge from both sun and rain. Generally the area had been grazed or cut up to the fence line in many instances. The presence of Water Mint *(Mentha aquatica)* in a number of hedges differs from previous surveys.

Archaeological sites

Papworth (2000) in looking at the history of St Gabriel's draws attention to the *Domesday* record showing that the land was held by the Count of Mortain, a half-brother of King William I (along with Charmouth) whereas Whitchurch was granted to the Norman Abbey of St Wandrille's. Chideock remained in the King's hands, having previously being held by Edward the Confessor. By medieval times, Chideock and St Gabriel's had different settlement patterns. Chideock was held as a single manorial unit until the 19th century and developed into a nucleated village with a regular layout of garden plots and houses. On the other hand, St Gabriel's was held by different landowners and was broken up. Interestingly, by the time of the 1840 tithe map, the manor house at St Gabriel's was the major landowner of the parish whereas by 2007, the estate is managed from Upcot Farm, marked as a barn on the 1840 tithe.

The four northern land units of the 1840 tithe map whose hedges were surveyed in 2007 were all independently owned at the time.

Shedbush (11951 and 113084) origins prior to 1769 are unknown although architectural details of the farmhouse may be 16th or 17th century (Papworth 2000).

Coldharbour (113055 and 113086) is shown on Lord Milton's map of 1769 together with:

Norchard Farm (113087)

Ship Farm (113085) was again mapped by Woodward in 1769 (DRO D.1/11704) and again in 1825 when John Flew bought the farm (DRO D 411/T3) and the 1840 Tithe Map (DRO T/SSG) showing that the three maps had similar boundaries with the loss of some small areas of orchard by 1840.

The boundaries of this area from the 1769 Woodward map have certainly been in existence for at least 250 years. Again from the ground survey in 2007, although only two hedges forming a parish boundary were surveyed in field 70 where the north–south eastern boundary and the southern east–west boundary form the parish boundary between St Gabriel's and Catherston Lewiston. These were substantial hedges on banks with many veteran holly, hawthorn, ash coppice and coppiced oak. With one coppiced ash stool at 2.1m, this boundary could be at least 800 years old (Rackham 2006).

Management of the hedges

Twenty-seven hedges (87%) were fenced with recently installed posts in the range of 0.6–1.2m. Eighteen of these fences had a 10cm wire mesh lower portion topped with a strand of barbed wire. All were in a good condition. Nine hedges were fenced using just barbed wire. In many instances, these fences were in the next field. There were no boundary incursions observed. Thirty hedges were on an earth hedge bank. Just two of these hedges were on a half bank and 28 hedges were mounted on a hedge bank. Generally speaking, a hedge found on a half bank has been positioned to follow a convenient contour of the land. In some instances, a track-way follows the position of the bank.

Button (2003) did not report on hedge heights or widths. Fourteen hedges (45%) had a width of <2m compared with ninety-five hedges (52%) in the 2005 survey (Newbould 2005) and 71% in the Osmington survey (Newbould 2004). In the national survey, 69% of the hedges were in this category (Barr *et al.* 2000). In this survey 32% had a width range of 2.1–4m and 23% had a width greater than 4.1m, while the corresponding figure for the Golden Cap 2005 survey was 26% and the Osmington survey was 19% for the 2.1–4m category, and 16% were greater than 4.1m against 26% in the 2005 survey. The greater number of larger hedges on the Golden Cap estate 2005 survey reflected the steep slopes of the half banks being too steep for cattle grazing and many of the banks being fenced for safety reasons, allowing scrub

growth. Only four (13%) of the hedges were below 2m. This compares with 31% in the 2005 Golden Cap survey and 33% in the Osmington survey but no information is available from the national results. The remaining 27 hedges were all nearing 4m+ in height. However, many of these tall hedges contained the ancient coppiced stools, which have not been managed for sometime.

Defra (Anon. 2007) require reporting on gaps. There were no gaps greater than 5m, with the average being around 2m. We are also asked to determine the height of the base of the canopy, which averaged 0.5m in 31 hedges in the range of zero to 2m. The only non-native in the hedges was sycamore and no alien plants in the verge vegetation. Hedges bordering grass or woodland such as all these are considered to be in favourable condition. In my estimation, with a maximum of 24 species and a minimum of 6 species and an average of 12 species, no verges were particularly species-rich.

Defra have recently announced targets to increase the number of hedgerow trees from 40,000 in England by 2010 to 80,000 in 2015. The hedge samples contained twenty-six maiden or pollarded trees, mainly Ash and Pedunculate Oak together with four Alder. Defra have also announced a target of reducing the number of nutrient-rich hedge verges to 50%.

Very few of the hedges have received recent management.

Discussion

1. In this survey, 58% (61% in 2005) of the ground flora under the hedges, were species of a nutrient-rich habitat (i.e. from Table 8, national vegetation communities, MG1, OV24, OV25 and S26, which is 33% below the Osmington survey and the national figures This reflects the present low nitrogen inputs into the Golden Cap estate. Bracken communities were present in one hedge (19 or 10.5% in the 2005 survey) against none in the Osmington survey. Button (pers. comm.) recorded a significant increase in Bracken over Professor Good's survey but unfortunately did not quantify his findings in the written report.
2. In England it is possible to compare local figures for the frequency of woody species against a national list in Firbank *et al.* 2000 (see Table 4). In England, Hawthorn is considered to be present in 89% of all hedges and Blackthorn 47%. The smaller leaved Blackthorn forms dense hedges and seems to be able to cope with the salt blown on strong sea winds better than Hawthorn. Elder is the third most frequent species. In England it is considered to be present in 36% of hedges. In this survey as a whole Hawthorn was present in 19 or 61% of hedges against 38% of the hedges in the 2005 survey, but in only 2 hedges was it judged to form the dominant NVC community, while Blackthorn formed the dominant community in four hedges. Hazel similarly was recorded in 90% (28% in the 2005 survey) of the survey hedges against 29% in the England survey. Holly scored quite strongly in the 2005 survey at 36% against 71% here and 12% in the England survey. Holly is considered to be an important element of hedges in the north of England on account of it being able to provide winter fodder (Fleming 1998). Terms such as hagg appear in many northern place names, although I can trace no reference to holly being used as fodder in Dorset. There was a particularly cold period in the 15th century and I have no doubt holly was used in many places as winter fodder. Significantly there were four small farms in the area surveyed.
3. Boundary hedges: The paper has reported on the important parish boundary hedges, which are traditionally marked by a venerable tree or a large stone and often sit on a significant hedge bank. Although the 2005 survey at Stonebarrow included some of the boundary between Stanton St Gabriel's and Catherston Leweston, an area north of Chardown Hill has not been surveyed and will be reported in the future. The significance of the parish boundaries in this survey is the presence of the large coppiced Ash and large Holly. Should the National Trust continue to coppice the ash? Rackham (1976) is of the opinion that a coppice will live indefinitely, providing that a maiden tree does not overshadow it. The coppice forms a living circle of tissue, leaving a hollow centre.
4. What evidence has the survey provided to support Papworth's medieval hedges? Following the publication of the New Naturalist 58, *Hedges* (Pollard *et al.* 1974), there has been a widespread assumption that in a 30m length of hedge, Hooper's rule applies. Basically, Hooper suggested that in the light of survey work involving 279 hedges, backed by documentary evidence it is possible to calculate the age of a hedge by the formula ((110 × no. of species) +30 years). The evidence against using this formula is well documented in Newbould 2005. In this instance from the existence of maps dating prior to 1800 and from the size of coppice stools recorded, the boundaries on which these hedges stand have existed for many years. We accept that biological material has a finite life and that in one instance; an ancient hedge boundary has been re-planted in recent years.

Conclusions

From Table 5, we can conclude that excluding, ivy honeysuckle, bracken and bramble, 18 or 58% (63 or 35% in the 2005 survey) of the hedges contained five or more species compared with 15 (19%) from 79 hedges in the Osmington survey. However, all the hedges in this survey compile with the recommended habitat action plan for hedges in that they contain 80% or more woody species (Mountford *et al.* 2007). We can conclude that as a number of hedges on the parish boundaries had large ash stools, these boundaries are very likely to be medieval, even if some of the other woody species are of a more recent origin. There is evidence that estate management practices are reducing nitrogen/phosphate levels in the areas adjacent to the hedges, which will increase biodiversity. Poor weather during the survey seriously reduced butterfly observations and no conclusions may be drawn. The methodology of collecting data to a prescribed format, which will allow a future repeat exercise; may in its own right be a barrier to understanding the age of the hedges under study. In assisting Defra to achieve a target of 50% of hedges having low nutrient herb-rich verges, the survey does not help owing to the unique circumstances of the low intensity farming here. The methodology is inadequate to collect data on the nutrient loading in the vicinity of the hedge. Leaf fall from trees, for example, provides natural nutrient loading.

Acknowledgements

Thanks are due to Dorset Environmental Records Centre for assistance with the project and receiving a deposit copy of the survey sheets; to Robert Rhodes, Warden, National Trust Golden Cap Estate for assistance with maps, providing copies of National Trust files and making access arrangements; to Martin Papworth, Regional Archaeologist for helpful discussions and the extensive use of material his team has researched; to the staff of the Dorset History Centre and to Katherine Barker for encouraging me to do this survey.

BIBLIOGRAPHY

Anon., 1991 *Citation designating The West Dorset Coast SSSI.* English Nature, Peterborough *via.* www.English-Nature.org.uk

Anon., 1995 *Biodiversity.* The UK Steering Group Report 2. Action Plans. HMSO, London.

Anon., 1999 *Natural Areas in the Southwest Region.* English Nature, Peterborough.

Anon., 2002 *Dorset Neutral Grassland Inventory.* Dorset Environmental Records Centre, Dorchester.

Anon., 2007 *Hedgerow Survey handbook – a standard procedure for local surveys in the UK.* Defra London

Barr, C.J., Stuart, R.C., Smart, S.M. and Firbank, L.G., 2000 *Results of Maff funded work in the CS2000 programme.* From www.cs2000.org.uk/M01_tables/reports/Explanatory_notes.

Bartlet, J., 2001 'A hedge survey in the parish of Cerne Abbas', *Proceedings of the Dorset Natural History and Archaeological Society* 123, 114–17.

Bickmore, C., 2002 *Hedgerow Survey Handbook: A standard procedure for local surveys in the UK.* Defra, English Nature, Countryside Council for Wales, London.

Boatman, D.J., 1980 'Mixed hedges of the former East Riding of Yorkshire', *The Naturalist* **105**, 41–44.

Boatman, D.J., 2001 'The composition and distribution of mixed hedges in East Yorkshire', *The Naturalist* 126, 113–25.

Bowen, H.J.M., 2000 *The Flora of Dorset.* Pisces Publications, Newbury.

Button, N., 2003 *Dorset's Changing Hedgebanks. A re-survey of Professor Good's Hedgebanks.* Dorset Environmental Records Centre, Dorchester.

Cheffings, C.M. and Farrell, L. (eds), 2005 *Species Status 7 The Vascular Plant Red List for Great Britain.* JNCC. Peterborough.

Firbank L.G., Smart, S.M., van de Poll, H.M., Bunce, R.G.H., Hill, M.O., Howard, D.C., Watkins, J.W. and Stark, G.J., 2000 *Causes of Change in British Vegetation Ecofact* 3. ITE, Grange-over-Sands.

Fleming, A., 1998 'Wood pasture and the woodland economy in medieval Swaledale', in M.A. Atherden, and R.A. Butlin (eds), *Woodland in the Landscape: Past and Future Perspectives.* PLACE, York.

Hill, D., Fasham, M., Tucker, G., Shrewry, M. and Shaw, P. (eds), 2005 *Handbook of Biodiversity Methods. Survey, Evaluation and Monitoring.* Cambridge University Press, Cambridge.

Hill, M.O., Preston, C.D. and Roy, D.B., 2004 *Plantatt – Atributes of British and Irish Plants:* Centre for Ecology and Hydrology, Abbotts Ripton.

Key, R.S., 1998 *Recording and Evaluating Parklands- the way forward.* English Nature Research Reports 295. Peterborough.

Lister, J.A. and Foster, A.P., 1996 *National Trust Biological Survey – the Golden Cap Estate, Dorset.* Unpublished report for the National Trust, Cirencester.

Mountford, E. and Stachan, I., 2007 *The 2005–07 UK BAP Priority Habitats Review.* Joint Nature Conservation Committee, Peterborough.

Newbould, J.A., 2003 'Dorset Natural History and Archaeological Society Field Meetings, 2003', *Proceedings of the Dorset Natural History and Archaeological Society* **125**, 203.

Newbould, J.A., 2004 'Southwest Dorset hedges – a survey of Osmington and East Preston parishes', *Proceedings of the Dorset Natural History and Archaeological Society* **126**, 119–25.

Newbould, J.A., 2005 'Southwest Dorset hedges (2) – a survey of The National Trust's Golden Cap Estate', *Proceedings of the Dorset Natural History and Archaeological Society* **127**, 111–23.

Mortimer, S.R., Turner, A.J, Brown, V.K, Fuller, R.J, Good, J.E.G, Bell, S.A., Stevens, P.A, Norris, D, Bayfield, N and Ward, L.K., 2000 *The Nature Conservation Value of Scrub in Britain.* JNCC, Peterborough.

Papworth, M., 2000 *Archaeological and Historic Landscape Survey – Golden Cap Estate.* Unpublished report for the National Trust, Wessex Region, Warminster.

Pollard, E., Hooper, M.D. and Moore, N.W., 1974 *Hedges.* Collins, Glasgow.

Preston, C.D., Pearman, D.A. and Dines, T.D., 2002 *New Atlas of the British and Irish Flora.* Oxford University Press, Oxford.

Rackham, O., 1976 *Trees and Woodland in the British Landscape.* J.M. Dent & Sons. London.

Rackham, O., 1986 *The History of the Countryside.* J.M. Dent & Sons, London.

Rackham, O., 2003 *Ancient Woodland, its history, vegetation and uses in England.* Castlepoint Press, Dalbeattie.

Rackham, O., 2006 *Woodlands,* Collins New Naturalist 100, London.

Read, H., 2000 *Veteran Trees: A guide to good management.* English Nature, Peterborough.

Rodwell, J.S. (ed.), 1991 *British Plant Communities I. Woodlands and Scrub.* Cambridge University Press, Cambridge.

Rodwell, J.S. (ed.), 1992 *British Plant Communities III. Grasslands and Montane Communities.* Cambridge University Press, Cambridge.

Rodwell, J.S. (ed.), 1995 *British Plant Communities IV Aquatic Communities, Swamps and Tall-herb Fens.* Cambridge University Press, Cambridge.

Rodwell, J.S. (ed.), 2000 *British Plant Communities V. Maritime Communities and Vegetation of Open Habitats.* Cambridge University Press, Cambridge.

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 269–274

The Dorset Coast

The Chantry, Bridport, a Medieval Lighthouse or Sea Mark?

The Chantry is prominent two-story medieval building on the western side of South Street, Bridport. It was built in the late 13th or early 14th century and was possibly associated with the harbour; subsequently it was converted into a house for a chantry priest (RCHME 1952; Rodwell 1990).

In 1987 the Chantry was the subject of a detailed survey (Rodwell 1990) during which one very unusual feature was discovered.

> Another primary feature is the corbel, which projects 0.3m between the first floor windows on the S, elevation. This is irregularly shaped and has a small round socket in the centre of its upper face. It is aligned beneath a larger circular cut-out in the projecting offset course at second-floor level.

This feature is believed to be part of the original building, of late 13th or early 14th-century date, though she notes that the upper stone has been reset, during the building's adaptation as a priest's house, in about 1368. She suggests that the original building had (Fig. 1);

> A low pitched, parapeted roof, with a cresset mounted on the south wall. If this consisted of an iron fire basket on a pole, it could have been secured by setting the basket on a slab oversailing the parapet course, passing the pole through a hole in the slab, and supporting the bottom of the pole on the corbel between the first-floor windows.

And was;

> A municipal building associated with a harbour just outside the town. It was not defensive, although it could have served as a lookout, and incorporated a light as a guide to an awkward harbour entrance.

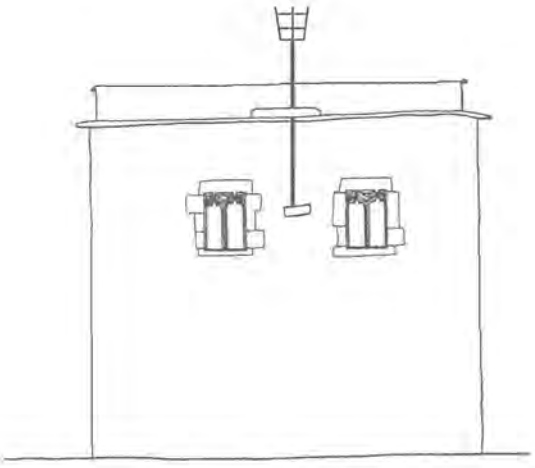


Figure 1: The south side of the original Chantry reconstructed with a fire basket. Based on a reconstruction in Rodwell 1990

The earliest harbour at Bridport was on the River Brit (Symonds 1912; Hannah 1986) but this had fallen out of use by the late 14th century when a new harbour was created on the shore at the mouth of the River Brit, probably to the east of the present harbour at West Bay (Hannah 1986).

A medieval lighthouse?

Unfortunately very little is known of the design of medieval lighthouses. Only one certain example is known, on St Catherine's Down on the Isle of Wight (Hague and Christie 1975). Other buildings, such as the chapel on St Aldhelm's Head, have been suggested as lighthouses, but the identification of these is often far from certain (Barker and Le Pard 2004).

If the Chantry was a lighthouse, there are essentially two questions to ask. First could the building have served as a lighthouse, and secondly is it in the right place to help guide mariners?

The projecting stones on the south side to the Chantry, thought to be the supports for a beacon pole, were examined in the summer of 2007. The lower stone projects about 300–400mm out from the wall and has a circular hollow in its upper surface. It is about two metres below the upper stone, which projects about 500mm out, and has a round hole, about 150mm in diameter immediately over the lower stone. It is a reasonable interpretation that a pole was located between the two stones, passing through the upper stone, with a pointed base that fitted into the socket on the lower stone. Unfortunately, it is not so certain what was carried on this pole. It would certainly be easy to fit a fire basket onto such a wooden post, similar to that which survives at Farley Chamberlayne in Hampshire or as shown on Tudor maps of beacons, though something else, such as a flag, could have been fitted just as easily. It is uncertain if there was easy access onto the roof when the chantry was built, though when it was converted into a priest's house a stair and small door were added which provide easy, if cramped, access to the roof immediately above the projecting stones.

The upper stone was fitted into its present position when the building was altered to serve as the accommodation for a chantry priest. This, together with the new access to the roof, suggests that the function of these stones continued when the building changed from a municipal building to a priest's house. It would be easy to suggest that the building was built to serve the port based on the river and additionally serve as a lighthouse. When the riverside port declined and harbour

functions moved to the coast, the building's function changed. However, the light was still useful to mariners, so when the Chantry was adapted to serve as a priest's house, the light was retained. Caring for such a light would be a charitable duty that could well have been devolved onto a priest. This is pure speculation as there are few records of the chantry priest, and none that mentions a light, though it is interesting to note that the one document that does refer to his duties says that he is to serve at the alter of St Leonard, and say regular masses to St Katherine (Rodwell 1990). St Katherine is the dedication of both the chapel at Abbotsbury, built as a sea mark, as well as the only certain medieval lighthouse on St Catherine's Down on the Isle of Wight.

The second question is more difficult to answer. At first glance the Chantry seems ill placed to serve as a lighthouse, lying well inland over a mile from the sea. It might be thought that the light could have served as a guide to ships sailing up the river to a possible landing place close to the Chantry (Symonds 1912). However, the Brit is far from straight; a light from the Chantry would not have guided any sailor up the river as it twists and turns too much. Rather the light must, as Rodden[**needs reference**] said, have acted 'as a guide to an awkward harbour entrance'. And the entrance to West Bay could be awkward; lying just offshore are two reefs, the Ram to the west and the Pollock to the east. That they could be dangerous is shown by the West Bay Wreck, a protected wreck site. This 17th-century armed merchantman seems to have run onto the Ram and sunk a short distance offshore.

If the Chantry was intended to indicate a safe approach to the harbour, then there would need to be additional markers. A modern chart will show a feature on land, and give a compass bearing from it to indicate the position of any hazard. In the past, when compasses were less common and less accurate, two marks were used to indicate such a line. Various possibilities were tried to see if there was a possible second marker. Bridport Parish church, used as a sighting point on Mackenzie's Chart of 1787, does not form a suitable alignment with the Chantry. However, natural features, in this case the positions of East and West Cliff, on either side of West Bay, might form suitable markers. Unfortunately the coastline around West Bay has changed over the centuries; while the edge of East Cliff probably hasn't moved that much, West Cliff was much higher and projected further eastwards than it does today. Early pictures, usefully reviewed by Howard (1992) as well as Mackenzie's chart, show this cliff before 19th-century erosion took its toll (Mackenzie 1787).

Using these sources to estimate the earlier position of the cliffs, alignments were drawn, with remarkable results (Fig. 2). If you draw lines between the Chantry and the present east cliff it marks the edge of the Ram, if between the Chantry and the approximate former location of the West Cliff, if marks the edge of the Pollock. So a captain steering for Bridport Harbour only had to keep the Chantry in view to avoid either of the reefs.

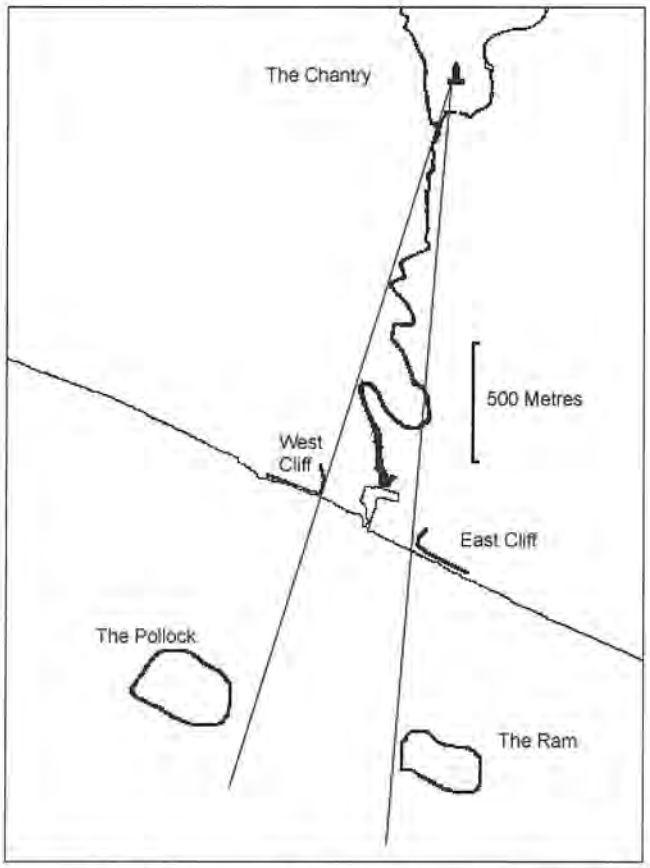


Figure 2: The location of the Chantry in relation to East and West Cliff and the Ram and Pollock reefs

This would suggest that the Chantry was built as a sea mark, and was possibly a medieval lighthouse. This is especially pleasing as recent work has effectively dismissed the claims that St Aldhelm's Chapel on the Isle of Purbeck was a lighthouse (Barker and Le Pard 2004).

BIBLIOGRAPHY

Barker, K. and Le Pard, G., 2004 'St Aldhelm and the chapel at Worth Matravers', *Proceedings of the Dorset Natural History and Archaeological Society* **126**, 148–57.

Hague, D.B. and Christie, R., 1975 *Lighthouses: Their Architecture, History and Archaeology*.

Howard J.M.H., 1992 *Turner in Dorset: Images from The Picturesque Views on the Southern Coast of England.*

Hannah, G.W., 1986 'The evolution of Bridport harbour', *Proceedings of the Dorset Natural History and Archaeological Society* **108**, 27–31.

Mackenzie, M., 1787 *Survey of the South Coast of England from Abbotsbury to Sidmouth.*

Rodwell, K.A., 1990 'A structural analysis of the Chantry, Bridport', Dorset *Medieval Archaeology* **45**, 122–43.

Royal Commission on Historical Monuments, England, 1952 *An Inventory of Historical Monuments in the County of Dorset: West.*

Symonds, H., 1912 'Bridport harbour through seven centuries', *Proceedings of the Dorset Natural History and Archaeological Society* **33**, 161–99.

Gordon Le Pard

The Wreck of the *Napoli* 2007–8

Last year's *Proceedings* outlined the history of the wreck of the MSC *Napoli* (Le Pard 2007), but ended in March 2007, with the wreck still lying just off Branscombe in Devon.

During the spring, work went on in clearing the wreck of its remaining cargo. This was finally completed on 17 May. The Receiver of Wreck continued to deal with the items recovered from the beaches, which involved a police raid on an industrial estate in Axminster where two motorcycles were recovered. The salvaged containers were taken to Portland, where storage facilities were available. Even here some people still considered wreck salvage fair game and there were reports of bottles of vodka being stolen.

On 9 July there was considerable excitement when the *Napoli* was finally refloated, and it was hoped that the story was now over; however, inspection of her hull revealed a major crack and she was beached again the following day. It was realised that it would be impossible to take her away in one piece and the decision was made to break her in two. First tugs tried to pull her apart – this failed and explosive charges were used. This took longer than expected and it was not until after the third attempt that the ship finally parted. Finally, on 3 August the forepart of the vessel was towed away. After a five-day journey she reached Belfast where she was cut up for scrap.

The stern section was heavier, and more badly damaged, so work began on cutting her up *in situ*. This continued during the autumn and is still (February 2008) underway. It will probably not be until the summer of 2008, eighteen months after the shipwreck, that she will finally disappear.

The *Ice Prince*

By a remarkable coincidence, almost a year after the *Napoli* was wrecked, another vessel got into trouble off Lyme Bay. The Greek-registered vessel, *Ice Prince*, was damaged by a storm. Her cargo of timber shifted and, badly listing, she was taken in tow with the aim of towing her to Portland. This time the conditions were very unfavourable and, according to the press release of the Maritime and Coastguard Agency;

> At a quarter to one this morning [15 January 2008], the general cargo vessel *Ice Prince* sank in very rough weather approximately 26 miles south south east of the Portland Bill (50 09.9N 002 02.08W)

Much of her cargo of sawn timber was lost, either just before or during the wreck. This drifted in a 'wood slick', eastwards, coming ashore in Sussex and Kent. There are continuing concerns about the fuel oil on board the *Ice Prince*, which is being monitored until such time as it can be extracted safely.

Gordon Le Pard

Early Medieval Pottery from Studland Bay

A rim of an early medieval pottery jar was found on the shoreline of the beach at Studland Bay by Mr and Mrs N. Burden, and reported to the Portable Antiquities Scheme. It had clearly been under the sea for some time as barnacles and marine worms had grown on it, and the broken edges were rounded and abraded.

Lorraine Mepham, of Wessex Archaeology, identified it as a sagging based cooking jar of 10th to 12th-century date and originating from Southern England, possibly Hampshire. The rim had an estimated diameter of 165mm, while the fabric had a slightly soapy texture and was coarsely tempered with abundant limestone and occasional flint and grog (Fig. 3). It has been recorded on the Portable Antiquities Scheme database as record DOR-0F2A67 and can be viewed at www.finds-database.org.uk

Figure 3: Cooking jar from Studland Bay. Illustration by Mike Trevarthen

The pottery undoubtedly came from a ship, but it is impossible to say if it was from a wreck or a casual loss overboard. Studland Bay is an ancient anchorage where vessels waited for suitable weather conditions before entering or leaving Poole Harbour. It is reasonable to suppose it came from a vessel sailing to or from Wareham, which was a major port at the time this object was lost.

Ciorstaidh Hayward Trevarthen and Gordon le Pard

The Warren Summer House, Hengistbury Head, Bournemouth

A substantial two-storey Summer House existed on the very top of Warren Hill, Hengistbury Head from the mid-18th century until the early 19th century. Virtually unknown today, the evidence of contemporary maps, charts and drawings indicates a building used both for recreation and as an important military and coastguard lookout.

History

The earliest depiction of the Summer House is on Isaac Taylor's Map of Hampshire (1759). Prior to that date, there was a complex background of ownership of Hengistbury Head.

Following the Norman Conquest, there eventually existed two subsidiary manors in Christchurch, one of which was known as the Manor of Christchurch,

Twynham, i.e. the church property, which then included Hengistbury Head. Richard Fenn, a London alderman, bought the Manor in 1630. Richard's nephew, also called Richard, probably the son of Sir Robert Fenn (Lord Mayor of London in 1638), inherited and died in 1683. His sister, Jane, inherited in turn. She was the widow of John Tregonwell (1598 to 1680). Jane conveyed the Manor to her beautiful daughter, Mary Luttrell, in 1690. After the death of her husband, Colonel Luttrell of Dunster Castle, Mary moved to London, where her house burnt down. Sir Jacob Banckes of Milton Abbas rescued her from the flames and became her second husband. His son, also called Jacob, inherited the Manor in 1724 and sold it to Edward Lisle of Moyles Court, Ellingham, in 1736. In 1754, James Willis of Ringwood purchased the Manor, and passed it on to his son John, who in turn bequeathed it in his will, dated 1776, to his nephew, John Compton. In 1782, the latter sold it to Gustavus Brander, who died in 1787 and in 1830 his family sold the Manor to the Meyricks (Druitt 1922).

Assuming that the Summer House would not have been older than 1630, it might have been built by Richard Fenn, his nephew (also Richard Fenn), Jane Tregonwell, Mary Luttrell, Jacob Banckes, Edward Lisle or James Willis.

After 1759 the next cartographical evidence is Lieutenant Murdoch Mackenzie's chart of 1785. Here, the Warren Summerhouse is identified as an important sea mark and located in the same position on the headland as shown by Isaac Taylor. It helped ships steer clear of Christchurch Ledge, by advising mariners to 'Keep Christ Church Tower just open to the westward of Warren Summer House'. In 1791, Thomas Milne's map of Hampshire also marks the 'Summer Ho.'.

In 1797, an unpublished Ordnance Survey map shows a Signal House as two structures. The northern one is in the same position as the Summer House shown in previous maps. The second is about 400 feet to the south-south-east. In 1826, Greenwood repeats the name as 'Signal Ho.' on his map of the County of Southampton, again showing two structures on the summit in the same position as for the 1797 map. As one overlooked the whole of the sea and the other the whole of the harbour, it may have been necessary to have two military lookouts to liaise with each other, at a time when the headland was so much wider. Alternatively, it is possible that the second structure was just a flag post for signalling or a beacon, and not a substantial building. In 1836, the Signal House appears in Sylvester's report about the need to improve Christchurch Harbour. Commander Sheringham's 1846 chart of the harbour shows a small building, marked as '**CoGd Watch Ho** *Built on the site of the old Warren Summer House*'. Clearly the Summer House had been demolished by 1846, to be replaced with a more utilitarian structure.

The conclusion is that the Summer House, Warren Summerhouse and Signal House are one and the same building. The lookout or signal use would have been partly for the military to monitor invasion risks and partly for the coastguard service and its various functions. The building existed from before 1759 until at least 1836. By 1846, it had been replaced by the Watch House, a smaller single-storey building.

Appearance

The Summer House is indicated on Taylor's map of 1759 by a stylised house. However, Mackenzie's chart of 1785 shows a more believable building in the form of a tower, of at least two storeys, with some sort of structure on the roof. A similar building is depicted on Milne's map of 1791. These drawings are very small and give little detail; fortunately, there exist three more detailed illustrations.

The first is a watercolour of 1811 by Elizabeth Fanshawe, showing a substantial building on Warren Hill together with what appears to be an even higher flagstaff, placed on lower ground to the east (perhaps the second 'Signal House' structure shown on some of the maps). The second is a sketch of 1818 by an unknown artist, who also drew a number of scenes from a length of the south coast; this is probably the best of all the known pictures. Finally there is a sketch of the harbour, Priory Church and Summer House by John Constable.

These three sketches all concur in their depiction of the Summer House, which can be reconstructed as a substantial two-storey structure having a square plan with sides of 16 to 20 feet length. Each of the four sides appears to have had two windows at first-floor level. The height to the top of the first floor would have been 40 to 50 feet and above this seems to have been an inset dome or cupola, having a central flagpole. Since it was inset, a walkway must have existed, approached by an internal staircase, allowing magnificent 360° views from the top. Were it still there, it is easy to imagine it now being classified as a typical early 18th-century folly and having the status of a listed building.

It was probably not particularly strongly built, and would have been in considerable disrepair and even unsafe by the time of its demolition. It would have been at least 77 years old, and possibly very much older, i.e. quite enough for such a tall and relatively slender structure to withstand the heavy Hengistbury weather. No doubt much of the material was salvaged for the later erection of the smaller, more practical single-storey Coastguard Watch House.

Using all the available illustrations, Christopher Hollick has produced an artist's impression of the Summer House, as viewed from Christchurch Harbour (Fig. 4).

Figure 4: The Warren Summerhouse, reconstruction drawing by Christopher Hollick

Location

The Coastguard Watch House, which replaced the Summer House, continued in use throughout the 19th century. It was a simple single-storey building, once described by a coastguard's daughter as 'one great room with four windows' and clearly shown on the first edition six inch Ordnance Survey map. This enables its location to be fixed at SZ 1704 9069. The Watch House was replaced in 1926 by a much smaller lookout hut that was only removed in 1976. That year, a new station (currently unmanned) was built to the east. The site is now marked by a mound which is described in the Dorset County Council Historic Environment record as:

> Site of a possible Bronze Age round barrow located on the highest point of Hengistbury Head. When visited by the Ordnance Survey field investigator in 1969, it measured 30 metres in diameter and was 1.3 metres high. A coastguard lookout station was positioned on its summit. Its surface was littered with building material, suggesting it may have been occupied by buildings for some time. Given its dominant location overlooking the whole of Christchurch Bay, it may well have served as a beacon and/or belvedere. A summerhouse is depicted at this location on a plan of 1785. (DCC HER ref 7 001 011)

The mound is still 'littered with building material', some of which is probably from the old Summer House. Standing on the spot today it is easy to appreciate why the location was chosen for the Summer House. The views are truly magnificent.

BIBLIOGRAPHY

Druitt, H., 1922 *Christchurch Miscellany* (ms notes held in Christchurch Reference Library).

Maps and charts

Greenwood, C. and Greenwood, J., 1826 *Map of the County of Southampton from an actual survey made in the years 1825 & 1826. By C. & J. Greenwood.*

Mackenzie, M., 1785 *Survey of the South Coast of England from Blackwood Point on the Isle of Wight to St. Alban's Head Lieut. Murdoch Mackenzie 1785.*

Milne, T., 1791 *HAMPSHIRE, or the County of Southampton, including the ISLE OF WIGHT. Surveyed by Thos. Milne in the years 1788, 89 & 90.*

Ordnance Survey, 1797 *Unpublished Map extract to scale of 3 inches to 1 mile, including Christchurch and Southbourne* (held at the Red House Museum, Christchurch).

Ordnance Survey Map, 1872 *First edition. Bournemouth to scale of 6 inches to 1 mile.*

Sheringham, W., 1846 *Chart of Christchurch Harbour to scale of 1 inch to 300 feet*

Taylor, I., 1759 *Map of Hampshire, Including the Isle of Wight.*

Pictures

Constable, John, (1776–1837) *Undated sketch of harbour, Summer House and Priory Church drawn from the north side of the headland.* (Sold in 2007 by auction to unknown buyer but sketch reproduced in *Bournemouth Echo* of 15 March 2007)

Fanshawe, Elizabeth, 1811 *Watercolour of Hengistbury Head, seen from Highcliffe and held by Ian Stevenson collection in Highcliffe.*

Unknown artist, 1818 *Pencil sketch of north side of Hengistbury Head, including Warren Summer House, from Christchurch Harbour and held by Ian Stevenson collection in Highcliffe.*

W.A. Hoodless

Unrecorded Enclosures on Warren Hill, Hengistbury Head

On top of Warren Hill, immediately to the east of the mound at SZ 1704 9069 lie two rectangular enclosures. They are separated by the present track that runs along the Head. To the north of the track lies the smaller enclosure (12 × 20m), while that the south is larger (22 × 41m), and may be divided into two. Both enclosures are surrounded by low banks, less than 200mm high and 500mm wide; those of the northern enclosure are worn in places, which reveals that they are made of coarse local gravelly soil.

The enclosures are readily visible on several aerial photographs, from the 1940s to the present, and are also shown on the first edition six inch Ordnance Survey map of 1872. The track that separates the enclosures leads straight to the mound and probably served both the Summer House and the Coastguard station. It is tempting to associate the enclosures with one or other of these buildings – a paddock would have been useful for

either of the buildings, while a small garden is possible alongside the Summer House (the remains of a garden are visible beside the remains of a summerhouse on Chesil Beach associated with Fleet Manor House).

Whatever their origin, it is remarkable, and rather encouraging, that features of this nature are still to be discovered on such a well-known archaeological site as Hengistbury Head.

Gordon Le Pard

Two previously unrecorded earthworks on White Nothe

White Nothe is a prominent headland lying 6 miles east of Weymouth. In the summer of 2007 two small enclosures were observed on a vertical aerial photograph taken in 2005, and subsequently visited.

White Nothe is crossed by a massive ditch, up to 30m wide and 10m deep. In the 19th century this was regarded as a defensive ditch, and is recorded as such on the first edition Ordnance Survey six inch map. Subsequently it has been described as a quarry ditch and this is probably correct, though it is unlike the other coastal Quarries found in Dorset, on the Isle of Purbeck or Portland.

Enclosure 1 (SY 7723 8086)

This is in the form of an irregular rectangle, with slightly curving sides about 11 × 12m, enclosed by a low bank approximately half a metre high by a metre wide, with no apparent ditch. It lies about 5m north of an early 19th-century lookout point, the remains of which were subsequently incorporated in a World War II observer point. It is possible that this enclosure was associated with the lookout, perhaps surrounding a 'signal post' which was linked to the chain of beacons erected to warn of possible invasion during the Napoleonic wars (Acland 1924).

Enclosure 2 (SY 7731 8080)

This lies about 80m south-east of Enclosure 1. It consists of a rectangle with straight sides 17 × 10m. The bank is of similar proportions to Enclosure 1, and also has no apparent ditch. On the northern side there is a gap, perhaps an entrance, opening onto a level area which runs to the edge of the quarry ditch, with which it may have been associated.

BIBLIOGRAPHY

Acland, J.E., 1924 'Notes on exhibits in the Dorset County Museum relating to the Napoleonic Era, 1793–1815', *Proceedings of the Dorset Natural History and Archaeological Society* **45**, 5–11.

Gordon Le Pard

Dorset Proceedings 129, 2008, 275–276

Obituary

JOAN ALISOUN GOODMAN (1911–2007)

In 1934, Joan Whybrow, with her fiancé Christopher Goodman (obituary *Proceedings* 2004), joined the team assembled by Colonel Drew and Mortimer Wheeler to excavate Maiden Castle. They returned yearly till 1937. And there, more than sixty years later, after her final ascent by the steep, narrow path up and down each rampart, she surprised guide and party by resuming her role of lecturer at the site, which had been a vital one at a time of great dependence on voluntary contributions. 'And now,' she would conclude, when the dramatic story had been unfolded, 'if you would all take out your cheque books ...'. Few wanted to escape. Troupes of French too, later invading as peacefully as their Veneti forebears escaping from Caesar, would be inspired, as it were on their own ground, with a triumphant 'Creusez, fouillez, bêchez, vous en viendrez à bout! Et voici en bref ce que nous avons arraché de cette terre: non pas de trésor, mais de la connaissance du temps passé'. This included not only apocalyptic upheavals, but her own everyday life: 'A vrai dire, cela arrive chez moi, à la maison' – of buns reduced to carbon in an Iron Age oven; and, 'De ces moulins à surface creuse nous avons découvert des quantités. Moi-même j'en ai vu exactement pareils au pays des Basutos en Afrique'.

Africa – Bulawayo – was her birthplace. Her father was killed in the war in German East Africa. A paper he read in Salisbury in 1907, 'Some Notes on the Antelope of Southern Rhodesia', includes the names for the fifteen species in Ndebele and in Shona, and his fluency in the languages of the natives led them to regard him as one of their own. She spent her early years in Cape Town and after school in England and at the Cape, where she was thrice gold medallist for French at the open Eisteddfod of South Africa, Joan went to London University, alarming her tutor with the assumption that the tutorial would be conducted in the language being studied. After she had worked for a spell at a City stockbroker's which had singled her out from three hundred applicants, the firm's head testified of Joan, 'Her mastery of French, German and Italian can only be described as phenomenal, and she also showed very great ability in translating technical and commercial documents from these three languages into English'.

Balancing the puzzles of the work during the idyllic time at Maiden Castle, Joan would ride up on the Ridgeway, if not quite to recover the unhedged exhilaration of the spaces of Basutoland, where her stepfather's brother had been Governor, yet certainly to enjoy the gentler equivalent of home. And she quickly became right hand for Tessa Wheeler, who wrote ' ... how much I have valued your being here, not only for your collaboration but for being you. First, I think Christopher is an extraordinarily lucky man and secondly I think you are one of the most intuitive of all the people who have been down. It is your instinctive understanding of what one is thinking of doing next (I noticed it forcibly when we were waxing the oven) that makes me prophesy that you have a flair for our work. Here's to next year anyway and to many meetings in the months to come. Please remember that you are as welcome in my quarters as Christopher – and that is saying a lot – with a welcome that has no ulterior motive beyond the selfish one of wanting to see you.' Tessa Wheeler died the following April, 1936.

Joan Goodman on Maiden Castle 1935

Married in 1935, after the war Joan and Christopher returned to settle with their two children in Charminster. Although in a sense her potential was never in fact embodied in a tangible achievement that really reflected it, Joan launched herself with tremendous verve into a series of absorptions such as growing carnations, hunting with the Cattistock, trips to

By the North Rampart

Stratford with the young for her beloved Shakespeare, giving talks on local history and her Italian travels, playing bridge, at which she rapidly became a master – and, finally, putting the fear of God into the congregation with her Old Testament readings, learnt by heart after her eyesight failed.

And during the four years of her widowhood, Christopher's presence remained ever vivid for her after their nearly sixty-eight years of happy companionship.

Jonathan Goodman

Proceedings of the Dorset Natural History and Archaeological Society 129, 2008, 277–278

Book Review

Christopher Dalton's The Bells and Belfries of Dorset *was winner of the Dorset Archaeological Award for 2007. His work represents many years of research which culminated in the publication of the first comprehensive survey of the county's many bells. The author's quest for detail places this scholarly work at the forefront of county-based bells and belfries surveys; it is a work not only of local interest but of national importance. It is reviewed here by Roger Peers.*

Christopher Dalton died earlier this year. An Obituary will appear in the next issue of the Proceedings.

Further information on the Dorset Archaeological Award is appended at the end of this review.

The Bells and Belfries of Dorset, Parts I, II and III, by Christopher Dalton, Upper Court Press, Ullingswick, Hereford HR1 3JQ, 2000, 2001 and 2005.

Designed and typeset by Christopher and Thomas Dalton, printed and bound by Henry Ling Ltd, the Dorset Press, Dorchester DT1 1HD. ISBN 0-9538616-0-0.

Dorset is supremely fortunate that Christopher Dalton after schooling at Bryanston, and an early interest in bells and bell-ringing, began in 1964 to work in earnest on a survey which has resulted in this unbeatably great three-volume work recording every church bell and every substantial secular bell in the post-1974 county of Dorset, as well as other bells known about but no longer extant – a comprehensive record based on personal investigation.

The result is a mighty work, elegantly designed and typeset by the author and his son, and most admirably printed by Henry Ling, the Dorset Press. Each volume records places alphabetically, and has a helpful diagram of the 24 parts of a traditional bell and its fittings, and descriptions of every bell's known history, often in considerable detail, with inscription, size, weight, note, founder and date.

Bells are put into their context with descriptions of their frames and fittings, followed by a briefer mention of towers, clocks etc, a practical note of where ladders are needed in order to reach bells, and the condition of the installation at the time of visits from 1964 onwards. Throughout, there are a multitude of excellent photographs and drawings, 1026 pages in all, the last 174 of which describe, in approximately chronological order, all the founders who have cast bells for Dorset, the towers and other structures in which bells are hung, bell-frames, and each specialist firm or individual that has hung bells in the county during the past century and a half or so. The last section covers the many different fittings of bells, and finally clocks and chiming mechanisms.

Not a dry-as-dust catalogue, this is a good read, sometimes a sad one with laments for the damage or destruction done quite unnecessarily by neglect of advice even in recent decades, but also recording the enthusiasm of bell-ringers and the researches of individuals.

Dorset had to wait until 1902 to 1906 for its first bell survey, carried out by the Revd John James Raven of Fressingfield, Suffolk, and a Vice-President of the Field Club, the Revd William Miles Barnes of Winterborne Monkton, Dorset; Raven had spent time looking at Dorset's bells in the middle of the 19th century, and 'The Church Bells of Dorset' originally appeared in our *Proceedings* vols 24–27, and then in book form in 1906.

Christopher Dalton's work places Dorset bells firmly in a national context. To quote from the Introduction: 'of all the counties of England and Wales, few can compare with Dorset for the rich diversity, interest and quality of its bells, both pre-Reformation and post-Reformation. No less than thirty-three bells survive from the eleventh to the fourteenth centuries, with another one hundred and seventeen from the fifteenth to the early sixteenth centuries ... many of them extremely well moulded with inscriptions in beautifully ornamented lettering. What is even more remarkable is that these one hundred and fifty bells were cast by at least fifty-four different founders'.

In the first volume is recorded the lamentable destruction of old bell-frames, where not only was the destruction unnecessary, but nothing positive has come of it; now only one medieval bell-frame – at Langton Matravers – survives of the four still extant as recently as 1974! On the positive side, however, in 1964, at the start of Dalton's survey, there were many belfries in varying degrees of disrepair, or even destruction. In the following years an enormous amount has been achieved, as a result of enthusiastic fundraising and sheer hard work on the part of the bell-ringers and parishioners alike. In my own parish of Beaminster, Chris Longridge and his team are prime examples of this great work.

Dalton's detailed descriptions of bells makes one want at once to get up and go out to hear, for example, at Hinton St Mary, 'the tenor, a glorious-sounding maiden bell [still in the state in which it was cast in 1614 and has not been tuned] ... Although relatively rough to look at this bell has near-true harmonies and its warm, gentle tone is unforgettably beautiful – an elusive quality

which more modern bells do not always achieve'. The tenor bell at Buckland Newton is 'gentle and venerable'. At St Peter's Dorchester, 'from outside the bells sound brassy but grand, [yet] in the ringing chamber, nasal ... the tenor is particularly strong and noble'. At Godmanston 'the third has a grand mellow tone though the tenor is poor-toned and wobbly'.

More horrors; 'At Cheselbourne the beautiful fifteenth century second [bell] was, in 1981, scandalously disposed of for scrap, though the technology of that decade could have repaired it successfully by welding'. In East Lulworth there is 'no sadder example in Dorset of the failure of church architects and diocesan advisors to adapt principles of careful and conservative repair'. Between 1964 and 1968 'every scrap of ancient woodwork was destroyed ... including an early bell frame, all the floors and beams, even the first floor with its handsomely moulded beams and carved boss'.

Perhaps worst of all, at Batcombe, despite the recommendation of the Council for the Care of Churches, the old tenor bell (1766) was melted down and the 'treble, with its beautiful traceried cross and ornamental Gothic lettering, dating from about 1400, was broken up by a local farmer so that it could be sold for scrap towards the war effort'.

And in Cerne Abbas in 1974, 'despite all attempts to secure its preservation, this important medieval and later frame was cut up with a chain saw, removed from the tower and mostly burnt – although some remains are stored at the Dorset County Museum'. In 1974 it was one of only five basically medieval frames surviving in Dorset and, at the time was described as 'strong and its fittings robust'. On the positive side: at Woodsford, is the oldest surviving bell in Dorset, and one of the oldest in England, likely to date from some time in the 11th century – 'the tone like the shape could be described as archaic but by no means unpleasant'. Little Bredy has the most astonishing bell installation in the whole of Dorset; 'the three bells hung above the other three are completely out of tune with them, and have weird harmonies'. The Loders tenor bell – 'no exaggerating to say that the 1626 tenor is one of the loveliest-sounding bells in the county'. There are many other such felicities to be found in the text.

As to bell-ringers, they too have a mention. 'There cannot be many families to beat the achievement of the Ridouts of Okeford Fitzpaine, eight of whom aged from 21 to 81, gathered in 1974 to ring on the eight bells of the portable "Expo" belfry while it was stationed near Stourpaine'.

There are so many delights to be discovered in this great history. The relevant passages should be constantly at the elbows of every bishop, archdeacon, incumbent, churchwarden and member of the Diocesan Advisory committee. Here, surely, is the most significant research work on a Dorset subject produced in the last 50 years. A pleasure to hold, to read and to understand, with a glossary which explains charming technical terms – blow-hold, chip-tuning, dogs, eye-topped clapper, gallows end, hoop gudgeons, jockey-slides, peg argent, Seager's apparatus, tucked-up and wobble.

It is high time the Society held a field meeting or two to visit Dorset churches when the bells are ringing as, for example, at Whitchurch Canonicorum where 'more critical listeners, whether bell-ringers or not, find this a grand and memorable ring of bells – the tower sways considerably during ringing [as does the great tower at Beaminster], the bells go well and are a pleasure to ring'.

Copies of all three volumes are on sale in the Society's museum. They will give untold and perhaps unexpected pleasure. Everything you need to know about your parish bells. The full story of an aspect of 900 years' worth of Dorset history is here. The set will become of increasing value, in all senses, in the years to come. We give thanks to Christopher Dalton for his remarkable skill and devotion in producing this masterpiece.

Roger Peers

Appendix

The Dorset Archaeological Award was established in 1988 by the Dorset Archaeological Committee. It is awarded biennially in recognition of outstanding contributions to Dorset archaeology.

Past winners are:

1988 The Studland Bay Wreck

1990 The Duchy of Cornwall for sponsorship of archaeological work in the county

1992 Norman Field for research, excavation and survey relating to Roman Dorset and the publication of *Dorset and the Second Legion*.

1994 David Strange for presentation of the historic landscape at Worth Matravers

1996 Jill Phillips for an archaeological survey of quarr houses in Purbeck

1998 Lilian Ladle and the Bestwall team of volunteers for the Bestwall Quarry archaeological project

2000 John Stark and the Crickmay Partnership for the Roman Town House, Dorchester

2002 Bill Putnam for his work on the Dorchester Roman aqueduct

2004 Ed Cumming for the *Earl of Abergavenny* project

2007 Christopher Dalton for his publication of *The Bells and Belfries of Dorset*

The next Dorset Archaeological Award will be presented in April 2009 at a ceremony in Christchurch. For more information about the Award please contact Claire Pinder, Hon. Secretary, Dorset Archaeological Committee, 20 Frome Terrace, Dorchester DT1 1JQ, telephone 01305 224921 or e-mail c.j.pinder@dorsetcc.gov.uk

INDEX

Notes for Contributors

Hon. Editor: Katherine Barker MA
DNHAS, Dorset County Museum, Dorchester, Dorset DT1 1XA
Tel: 01305 262735
e-mail: katherinebarker@lanprobi.org.uk

Contributions for the *Proceedings* should be on subjects related to the archaeology, history, literature, geology or natural history of Dorset. While there is no fixed length, papers ideally should not exceed 7000 words, although longer papers will be considered if of sufficient importance. Notes and Shorter Contributions are also welcome. The Hon. Editor will be pleased to advise and discuss with intending contributors at any stage during the preparation of their work. All papers submitted are refereed by academic consultants.

Papers must be submitted for consideration by the end of November and shorter contributions and reports by the end of January for publication in June.

Please submit two paper copies of the text, together with a copy on disk, and including one set of original illustrations and a second set of photocopies. Authors are asked to include a word count at the beginning of their typescript. A further copy should be retained by the author.

The typescript copy you submit must be complete, and please number the pages – by hand if necessary. Please do not 'design' your typescript or use an automatic formatting or style sheet or automatic note-numbering facility – these will get lost in typesetting.

In short, please treat your computer like a simple typewriter. Leave a reasonably sized margin on the left-hand side of at least 25mm and please do **not** justify the margin on the right – leave it 'ragged'. Avoid dividing words with a hyphen at the ends of lines.

Please print on one side only, use a single size of font, and use double-spacing throughout, including Notes, Tables, References and Bibliography.

Please ensure that all Notes are printed at the end of your typescript and that the Bibliography is complete and corresponds exactly with citations in the text.

Please note that underlined words in the text will automatically be replaced with *italic* type. If you want a word underlined, please make a note of this on your paper copy and in your covering letter.

Illustrations need to be clear and easily reproducible. Bear in mind that your illustrations may have to be reduced or enlarged to fit either column or page width. Please submit original illustrations separately (including tables), with labels and captions consistent with the text. Please do not integrate them in the text. Where an original image has not yet arrived but is imminent, a photocopy may be submitted as in interim measure.

Prepare a separate list of captions (NOT marked on the back of the illustrations), typed in double-spacing. The caption list should include full details of sources and copyright acknowledgements if appropriate. Number captions consecutively in Arabic numerals in the same sequence as the illustrations are referred to in the typescript

Line drawings, charts, maps, diagrams and (black and white) photographic plates may be submitted as original paper copies, or as scanned files (of original copies) or as digital illustrations. Digital images of line illustrations should preferrably be produced at 1000dpi for satisfactory reproduction; 600dpi is an absolute minimum. For half-tones (photographs), 300dpi should suffice. When submitting articles on disc, Word or Rich Text Format files are preferred for text, jpeg or tiff format for graphics. Jpeg files should be saved immediately as tiff files before carrying out any manipulation, saved to 100% of final publication size and as Grey Scale.

Please note that original illustrations/graphics are preferred by the printer as this ensures correct calibration.

References

The Harvard system of referencing (author, date and page, in brackets in the text) is preferred; with the full reference cited at the end of the paper in the Bibliography. For examples, see recent issues of the Dorset *Proceedings*.

The journal name should be given in full, and the place and publisher of books and monographs. References in footnotes should be avoided if at all possible.

Thus reference to a paper cited in the text which reads (Hinton 1994, 11) will be found in the Bibliography as Hinton, David A., 1994 'Some Anglo-Saxon charters and estates in south-east Dorset', *Proceedings of the Dorset Natural History and Archaeological Society* **116**, 11–20.

A single reference to a book or monograph (Mills 1977, 230–1) will read Mills, A.D., 1977 *The Place-names of Dorset, Part 1*. English Place-name Society.

A reference to a whole book (Arkell 1933) will read Arkell, W.J., 1933 *The Jurassic System in Great Britain*. Clarendon Press, Oxford.

For a paper in another publication (Ward 1990) will read Ward, L.K., 1990 'Management of grassland-scrub mosaics', in S.H. Hillier, D.W.H. Walton and D.A. Wells (eds), *Calcareous Grasslands – Ecology and Management*. Bluntisham Books, Huntingdon, 134–39.

Endnotes can be used for specific information that cannot otherwise be comfortably incorporated in the main body of the text.

Publication of a paper, note or report by the *Proceedings* does not necessarily imply that the DNHAS

endorses the views expressed. Although the Editorial team endeavours to publish work that is academically sound, responsibility for content and opinions expressed rests with the individual authors.

Copyright in the Proceedings of the Dorset Natural History and Archaeological Society Proceedings rests with the Society. For DNHAS Monographs copyright rests with both the Society and with individual contributors. Copyright of articles arising from material submitted for the Mansel-Pleydell Essay Prize belongs to the Mansel-Pleydell Trustees. Authors should ensure that if they use material protected by copyright permission to use it must be obtained by the author in advance and in writing, and indicate to the Hon. Editor any specific form of acknowledgment.

Charging Policy The Society does not normally charge the costs of printing to individual contributors but may reserve the right to charge when papers or shorter articles derive from funded developer-contracts or are in receipt of grants from local or national bodies. Publication is expensive. The Hon. Editor is always pleased to hear of societies or bodies – or even individuals – who may be willing to offer financial assistance in the publication of a paper or report of particular interest to them. Full acknowledgement will, of course, be given.

The Society reserves the right to make a charge to individual authors for any major corrections or alterations made to page proofs (errors made in typesetting are, of course, excepted).

Ten off-prints of each paper will be given free (to be shared between co-authors). Offprints are not given for Notes and Shorter Contributions.